

PRO PUBLISHING SECRETS

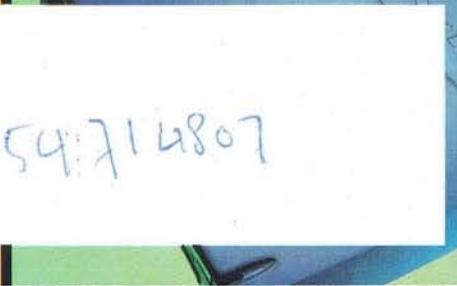
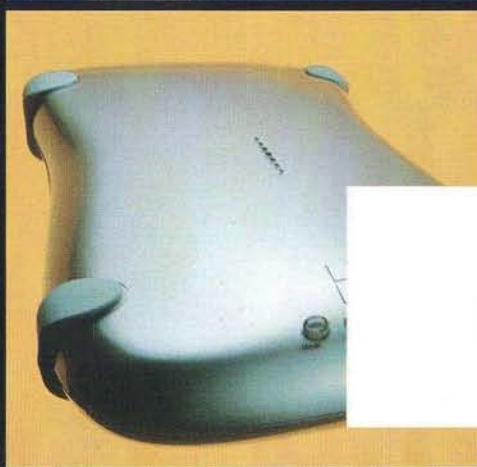
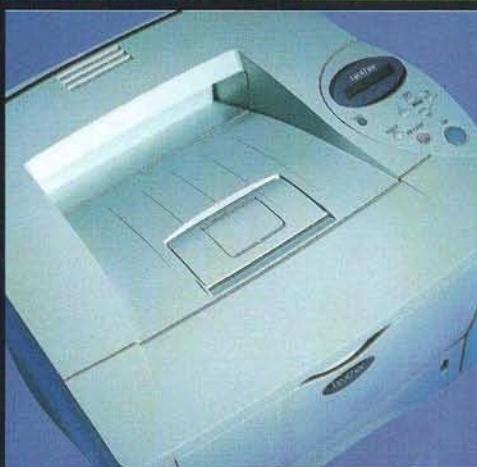
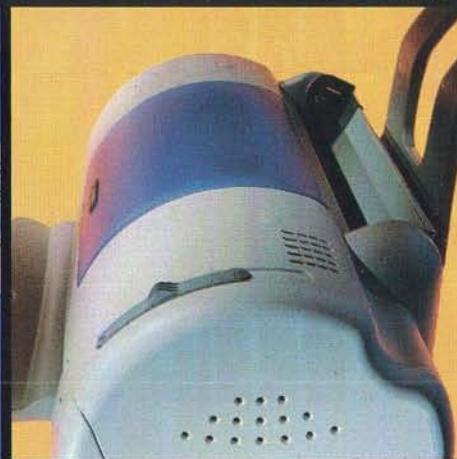
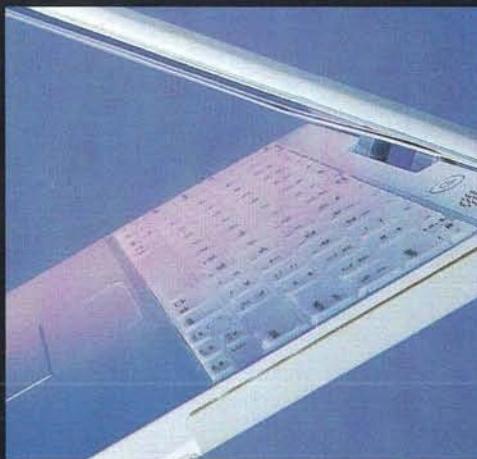
Productivity-Boosting Advice from Web and Print Experts

08.2001

Macworld

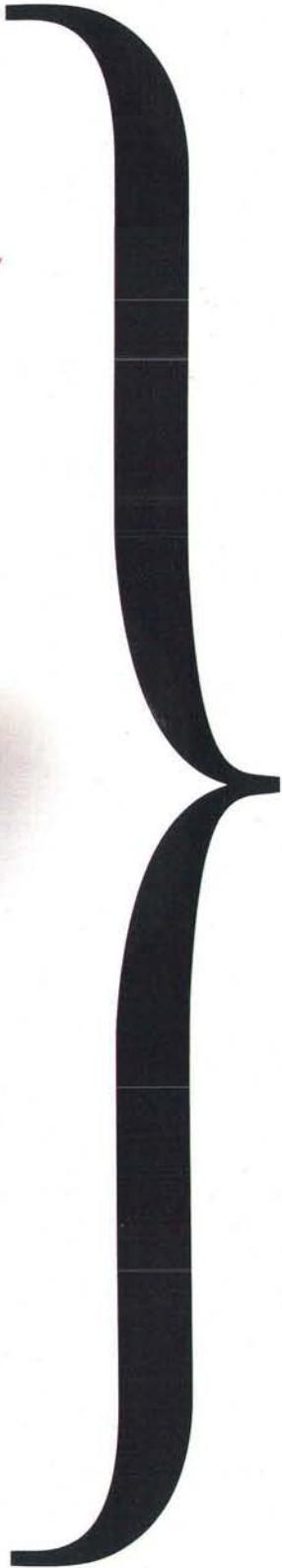
THE ULTIMATE MAC BUYERS' GUIDE

REVIEWED: Apple's New iBook ■ 20 Printers, Ink-Jet and Laser
10 FireWire CD-RW Drives ■ Adobe After Effects and Photoshop Elements



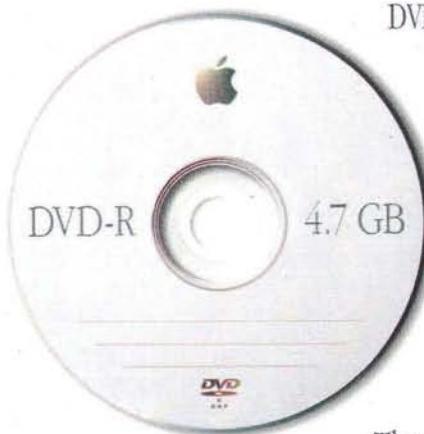
54.714807





What's the point of capturing life's special moments on videos you can only play on your camcorder? Now, with the new Power Mac™ G4 and Apple's revolutionary iDVD software, you can organize and preserve your favorite memories on DVDs you can watch again and again on almost any standard DVD player. iDVD's simple drag-and-drop interface makes it easy to create professional-looking

DVD menus in minutes.

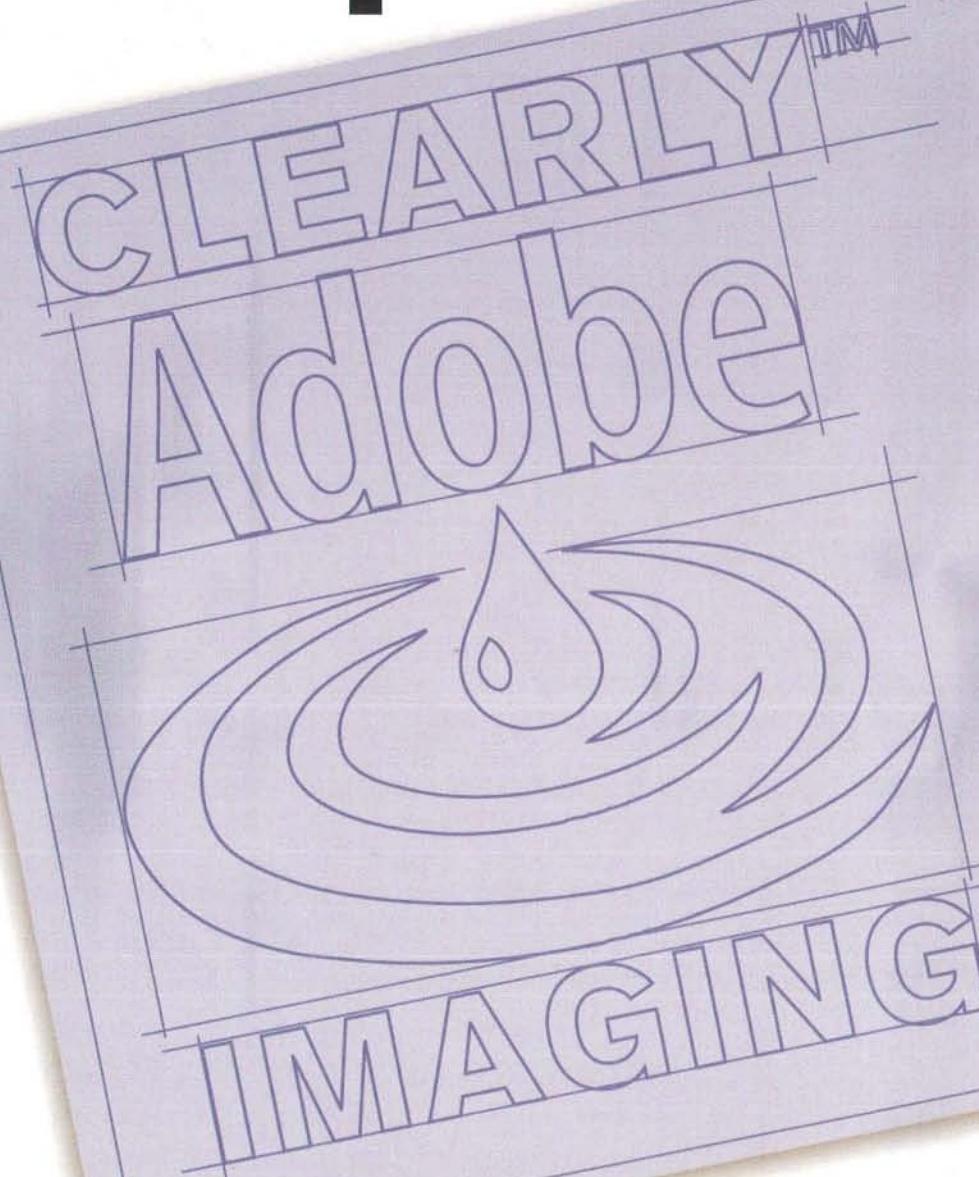


You can even include slide shows of your favorite photos™ right alongside your movies.

Then you can use the new G4's aptly named SuperDrive™ to burn your own custom DVDs. No more dusty videotapes and crumpled photos. Just ultra-crisp digital video and CD-quality sound ready to be shared with friends and family anywhere. To see how you can make your memories last forever, visit www.apple.com or call 1-800-MY-APPLE.  Think different.

XANTÉ's

Blueprint for Success



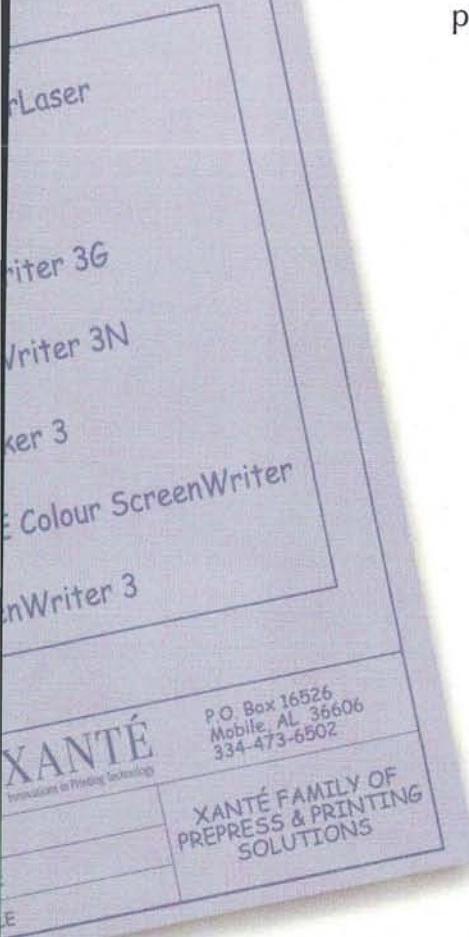
NOTES

- ① XANTÉ Color
- ② FilmMakers
- ③ Accel-a
- ④ Accel-
- ⑤ Plate
- ⑥ XAN
- ⑦ SO

- Photo Quality Color Printing • Graphics Printing • Computer-to-Plate • Computer-to-Film
- Desktop Film Processing • Positive Film Systems & Heat Transfers for Screen Printing
- Office/Network Printing



cess!



XANTÉ® CORPORATION is proud to provide Macintosh® users with the quality and assurance of Adobe® PostScript® 3™ on a complete line of printing solutions. We are dedicated to the Apple® Macintosh market by offering you superior printing products that not only include Adobe® PostScript®, but also boasts the highest resolutions available, incredible performance, oversized printing, and film capabilities – all part of the blueprint for success.

XANTÉ ColourLaser™ Series

Features complete color printing solutions ranging from general office use to high end graphics and prepress applications. Includes photo-quality color, 13"x19" output, sophisticated color management/matching capabilities, and much more.

FilmMaker 4

Generates quality film negatives or positives up to 2400 dpi directly from your desktop!

Accel-a-Writer® 3G

Offers up to 2400 x 2400 dpi monochrome graphics printing on page sizes up to 13" x 35.5".

Accel-a-Writer 3N

Serves as a workgroup laser printer with up to 1200 dpi on 13"x18.5" page sizes – all at an incredible price!

PlateMaker 3

Provides computer-to-plate, computer-to-film, camera-ready output, and proofing all from one device. Eliminates camera and darkroom work as well as hazardous chemicals!

XANTÉ Colour ScreenWriter™ Series

Produces quality film positives, heat transfers, labels and bumper stickers, and color proofing for screen printers.

ScreenWriter 3

Is a monochrome solution for producing film positives for screen printing applications.

XANTÉ has the solution to all your printing needs!
Call now for complete information and actual output samples.

Sign up online today for your chance to win a
FREE FilmMaker 4!
www.xante.com/mw8

800-926-8839 ext. 2169



© 2001 XANTE CORPORATION. XANTE, Accel-a-Writer, ScreenWriter, and ColourLaser are trademarks or registered trademarks of XANTE CORPORATION. Adobe, PostScript, PostScript 3, and the Clearly Adobe Imaging logo are trademarks or registered trademarks of Adobe Systems Incorporated. Other brands and product names are trademarks or registered trademarks of their respective holders. XANTE CORPORATION: Post Office Box 16526, Mobile, AL 36616-0526, USA, Tel: 334-473-6502, Fax: 334-473-6503, www.xante.com

Opinion

11 The Vision Thing

ANDREW GORE A new OS from Apple means new mouse ratings from *Macworld*.

17 Forums and Feedback

Readers respond.

43 The Game Room

PETER COHEN Like its predecessors, *Myst III: Exile* will keep you guessing.

140 Ihnatko

ANDY IHNATKO Bluetooth could change the way we live and work—but is Apple interested?

Buzz

18 The Apple-Motorola-IBM alliance, Olympus's PT-002

alliance, Olympus's PT-002 waterproof camera case, GPS devices, and Dr. Mae Jemison.

How-to

70 Think Outside the Picture Box

DAVID BLATNER Use Quark-XPress clipping paths to take images beyond the expected.

77 Web Publishing Secrets

DAVID SAWYER MCFARLAND Macromedia Dreamweaver's Find And Replace feature makes updating Web sites a snap.

81 Print Publishing Secrets

DAVID BLATNER Learn how to avoid common—and costly—printing mistakes.

85 Mac OS X Secrets

GREG KNAUSS Use the powerful Apache Web server to build and run a Web site.

88 Mac 911

CHRISTOPHER BREEN Get sound into Macs without an audio-input port, import and export database information, decide whether you need a firewall, and preserve system settings in multiuser environments.

August 2001

Macworld

www.macworld.com

Incorporating MacUser



Old Mac, New Tricks

ADAM C. ENGST You don't need to use a fancy new Mac to listen to your enormous collection of MP3 files. We'll show you how to update your hardware, create playlists, and turn your older Power Mac into an MP3 jukebox.

64

On the Cover

Photographs by Kevin Twomey



Macworld's Ultimate Buyers' Guide: Printers

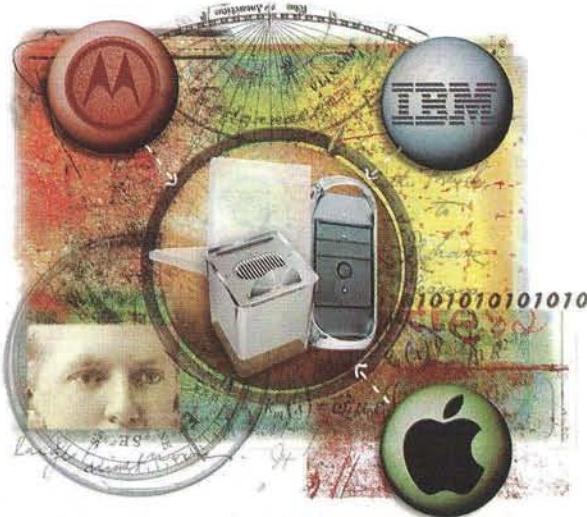
BRUCE FRASER With the variety of printers available today, it's hard to know which one is right for your small business or home office. To help you decide, Macworld Lab put 20 printers to the test.

46

Stand by Your CPU

Despite the *megahertz gap*, IBM and Motorola are good for Apple.

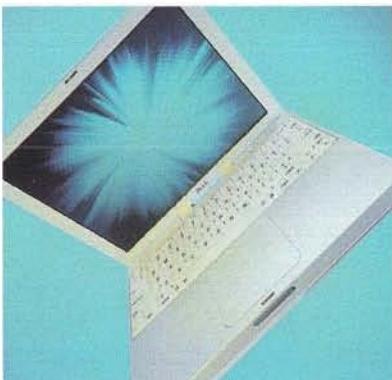
18



The iBook Cometh

ANDREW GORE Read our review of Apple's new iBooks, and find out if one of them will be your portable of choice.

24



Macworld.com

Stay abreast of the latest Mac OS X coverage, learn more about portable Macs in our forums, and find new uses for older Macs—only on Macworld.com.

Reviews

24 Consumer portables

- *** iBook with CD-ROM drive
- ***½ iBook with Combo drive
- ***½ iBook with DVD-ROM drive

26 Video-effects software

- *** After Effects 5.0

28 FireWire CD-RW drives

- *** Acomdata FireWire CD-Rewritable Drive
- *** CD CyClone CDRevo
- *** ClubMac FireWire 16x/10x/40x
- ***½ EZQuest Boa CDR/W 16x10x40 FireWire External
- ***½ FireWireDirect.com FireCD 16x10x40 Yamaha
- ***½ Formac cdrw 16/10/40
- *** LaCie 16x10x40x U&I
- ***½ MadLogix Alien 16x10x40 External FireWire
- ***½ QPS Que Fire CD-RW 16x10x40 External
- *** Yamaha LightSpeed CD-RW Recorder CRW2100FXZ

30 Analog-to-DV converters

- ***½ Dazzle Multimedia Hollywood DV-Bridge
- *** Formac Studio
- ***½ Power R Director's Cut
- *** Sony DVMC-DA2 Media Converter

32 Image editor

- ***½ Adobe Photoshop Elements

34 3-D-modeling software

- ***½ LightWave 6.5

36 Programming tool

- *** RealBasic 3.2

38 Document-revision utility

- ***½ Voodoo Personal 2.0

39 Word processor for QuarkXPress

- *** QuarkCopyDesk SE 2.0

40 Asset-management software

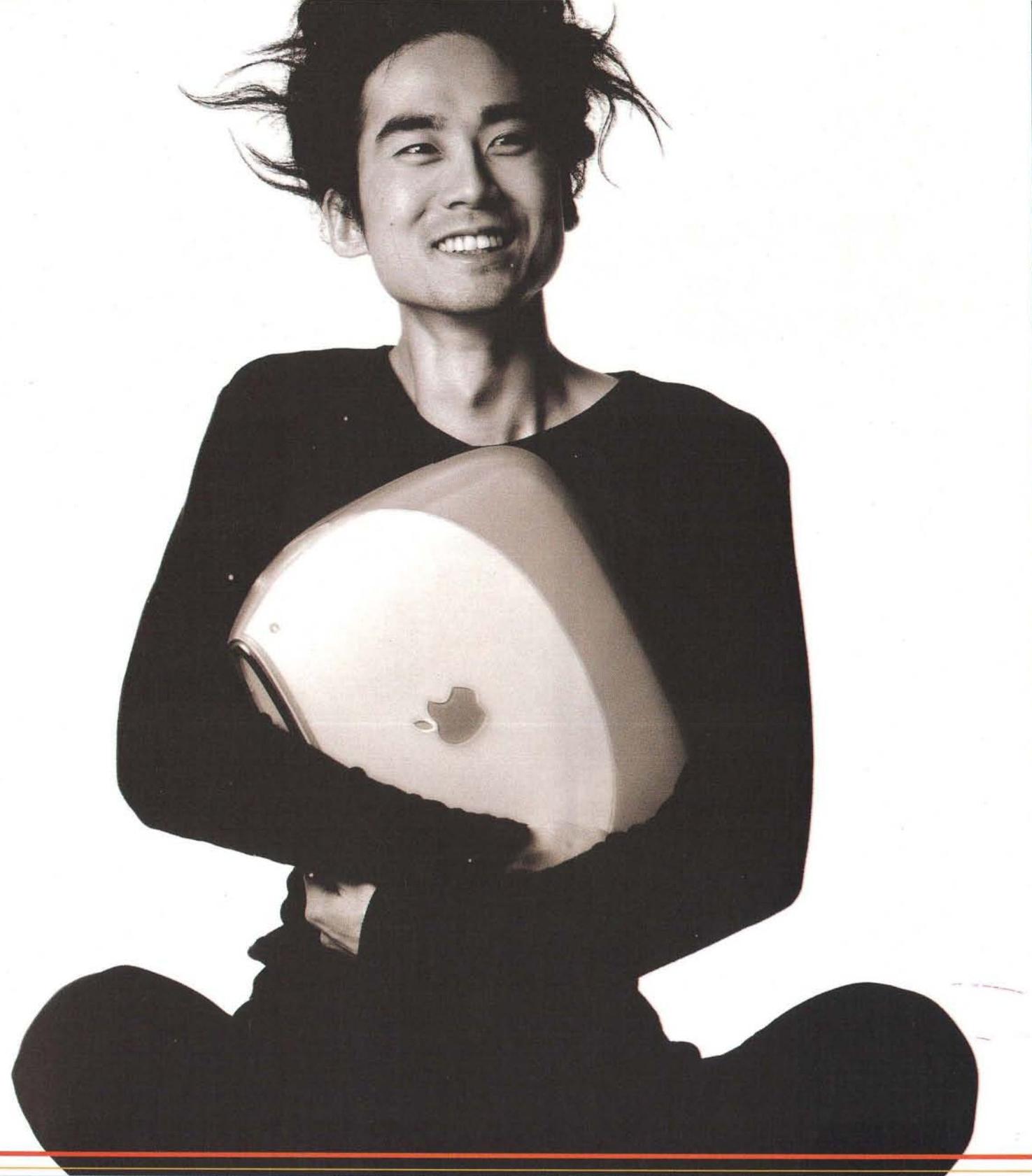
- ***½ iView MediaPro

40 Digital-imaging hardware

- ***½ Iomega FotoShow

41 More reviews online

- Macworld.com Reviews



Pan

I get paid for my ideas. But first I have to get them across. To clients. To budget committees. To people thousands of miles away. **Microsoft® Office 2001** keeps me on top of my business. And my life. All the essentials. Made easy. Made for my Mac.



Come see us at
Macworld Expo New York
July 18-20, 2001
Booth #618
www.office2001mac.com

- With ordinary printers, you see her bathing suit is wet.
- With our printers, you see her bathing suit is painted on.





YOU'VE GOT TO SEE IT IN **EPSON** COLOR.

It's true. The only thing she's wearing is her birthday suit. Take a closer peek at the laces and you'll see the work of an incredible artist. Brilliantly revealed by what could only be an Epson printer. One as adept at creating the boldest color as it is at capturing every brush stroke of detail. A talent that can take a greeting card, a school report or even a bathing suit and transform it into a masterpiece. Only Epson® has a full line of printers for any need – from everyday use to creating the most treasured photos. Plus, with Epson, you'll always get: Up to 2880 x 720 dpi for sharp black text and incredible detail • Award-winning Micro Piezo™ technology for a cleaner smaller droplet – as small as 3 picoliters • Fast print speeds – up to 13 PPM black/10.5 PPM color (with the Epson SC 980) • PC/Mac compatibility. And remember, only Epson supplies guarantee Epson quality. For more info, call 1-800-GO-EPSON or visit epson.com.

Epson Stylus Color
Ink Jet Printers.
Sheer brilliance
starting at \$99.



Epson, Epson Stylus and Micro Piezo are registered trademarks of Seiko Epson Corp.
© 2001 Epson America, Inc.

Circle 62 on card or go to www.macworld.com/getinfo



Coming this August

www.abrushwithreality.com

THE MOUSE RATING IS, IN a very real sense, what *Macworld* is all about. It's the distillation into a single icon of what we do best: help users make the smartest Mac investments, and then help them get the most out of those investments.

That's why, by the end of this year, *Macworld* will stop using performance under Mac OS 9 as the basis for all of its ratings and lab tests. Come the end of 2001, all products that *Macworld* evaluates will be judged by how well they operate in Mac OS X, either natively or in the Classic environment. Software or hardware that does not support OS X at least in Classic mode will not be rated (although it may still be covered otherwise by the magazine).

The reason is simple: with the Mac world starting a tumultuous transition to Mac OS X, there has never been as great a need for objective, accurate, definitive purchasing advice. The danger of making costly mistakes is greater now than it's been in years. And while the stakes are high, the costs of not making the switch are even higher. That's why we at *Macworld* have chosen to put 100 percent of our resources and expertise into helping to make this transition as smooth as possible for our readers.

Even if we have to twist a few arms along the way.

The Mouse That Roared

Changing our ratings basis from OS 9 to OS X was inevitable. Apple has made it clear: the Mac is moving to OS X—as quickly as possible. Mac OS X is already included on every new Mac's hard drive. Soon when you start up that brand-new Mac, it'll be OS X's Aqua interface and not OS 9's Platinum look and feel that greets you.

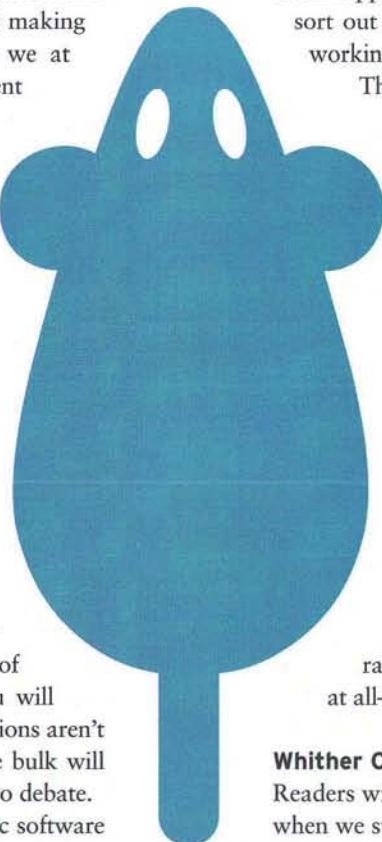
And while Apple is moving fast, so are our readers. According to a recent survey of *Macworld* subscribers, 68 percent of you will have OS X by summer. Most Mac applications aren't available in native OS X versions, but the bulk will run in Classic. How well they run is open to debate.

Apple has put a lot of pressure on Mac software developers. Its past two Worldwide Developers' Conferences were spent convincing them of the vital need for

ANDREW GORE

The Blue Mouse Cometh

An Icon of a Different Color Illustrates Our Commitment to Mac OS X



Whither OS 9?

Readers will be able to tell from a simple visual cue when we start using Mac OS X to evaluate products: our mouse-rating icons will change color, from red to

continues

them to move their applications to OS X. Which only makes sense: Mac users will be more inclined to make the transition if their favorite programs are available on the other side of the great divide.

By deciding to stop rating products based on Mac OS 9, *Macworld* is putting pressure on those developers, too. We hope it will be an added incentive for them to get their OS X products right the first time. And, in turn, the developers will have an interest in ensuring that Apple continues to improve Mac OS X, making it a more stable platform on which to build great software.

But we're not pressuring Mac developers just because Apple is. Every Mac user who is considering the jump to Mac OS X needs to know how well the latest products work on this new operating system. Those who've already made the transition will also be hungry for that information. They'll be able to get it from us.

Surely, some Mac developers will be unhappy about our decision. Most are still trying to sort out their OS X development plans; others are working hard to make their programs OS X native.

That's why we're announcing this change so far in advance: to give fair warning.

The slow pace of progress by many developers toward OS X compatibility is not entirely their fault. Some admit dragging their feet because of doubts about the new operating system and the continued viability of the Mac itself. But other developers tell us they don't have all the tools they need to successfully move to OS X. Apple's making progress, they say, but key components of the operating system and development environments are still lacking.

I hope our move will help developers pressure Apple to ensure that they have what they need to make great OS X products. After all, Apple doesn't want to see a raft of poorly rated products—or worse, none at all—in *Macworld*'s end-of-year issue either.

blue. This should also benefit developers, who'll be able to put those same blue mice on their product packaging, declaring that their products run on OS X, and just how well they run.

But our move to base mouse ratings on Mac OS X doesn't mean we'll be ignoring how products work in OS 9. As long as the Mac's most active communities continue to use the classic Mac OS, we'll be vigilant about Mac OS 9 performance. In the text of our reviews, we'll still let you know how well each product works in OS 9.

Nor will Mac OS 9 rapidly become OS non grata in our magazine. Our how-to and feature articles will continue to address the hardware and software you're using now. (Of course, the *Mac OS X Secrets* column we began in our July issue will always explore the technical side of the new Mac platform.)

Debuting this month are two new columns, *Web Publishing Secrets* and *Print Publishing Secrets*. Both will focus predominantly on Mac OS 9 for some time to come. Even after the mission-critical applications of the publishing world have moved over to Mac OS X, there will be the matter of custom AppleScripts, application plug-ins, and other essential cogs found in any pro publishing setup. For this reason, publishing professionals may be loath to chuck a system that works and move to a new operating system right away.

For them, *Macworld* will continue providing tips, tricks, shortcuts, and other useful advice—and we'll also monitor the Mac market's progress toward the day when professional publishers can confidently make the transition to Mac OS X.

Expert Buying Advice

Another feature that's new this month is our "Ultimate Buyers' Guide" series. Scheduled to appear quarterly, the articles in this series are comprehensive guides to buying essential Macintosh add-ons such as printers, digital cameras, monitors, and storage devices.

The guides will feature reviews based on comprehensive lab testing (this month we evaluate 20 ink-jet and monochrome laser printers). But in addition to giving you a list of the best current products, we'll teach you how to shop for the products in the future. Each guide will explain in detail the various features found in different product categories, so you can make good choices based on what you need.

The buyers' guides will follow along when *Macworld* switches the basis of its mouse ratings to OS X. The next guide, scheduled for our November issue, will use OS 9 in an evaluation of digital cameras. But the guide after that, planned for February 2002, should feature product reviews based on their performance in Mac OS X.

Macworld Recommends

Apple took a bold step, replacing the entire foundation of 17 years of success with something we all hope will be better. It was time for something new. Mac users have been demanding a robust, modern OS for more than a decade.

Well, now we have one. But if the people who make Mac hardware and software don't put maximum effort into bringing top-notch products to Mac OS X, Apple's Herculean efforts to build this radical new operating system will be for naught.

So we're putting our mouse ratings where our mouth is: strongly behind the migration to Mac OS X. Our readers will need reliable tests and ratings to help them safely bridge the chasm between platforms, and only through that transition will the Mac platform continue to grow and improve. ■

ANDREW GORE is *Macworld*'s editor in chief. To comment on this column, visit our Columnists forum (type **Vision Thing** in *Macworld.com*'s Search box).

C O R R E C T I O N

The "Speed Racer" illustration in "Does MHz Matter?" (July 2001) was created by Terry Paczko.

Macworld

VP OF CONTENT/EDITOR IN CHIEF Andrew Gore

EDITOR Jason Snell

EXECUTIVE EDITOR Scholle Sawyer McFarland

EXECUTIVE EDITOR, MACWORLD.COM Lisa Schmeiser

SENIOR EDITOR, BUZZ AND NEWS Philip Michaels

SENIOR EDITOR, HOW-TO Terri Stone

SENIOR EDITORS, REVIEWS Linda Comer,
David Weiss

ASSOCIATE EDITORS Lotus Abrams,
Jennifer Berger,
Mathew Honan,
Kelly Lunsford,
Jonathan Seff

ASSISTANT EDITOR Adrienne Robillard

EDITORIAL ASSISTANT Bonnie Huie

EDITORIAL INTERN Jennifer Smodish

CONTRIBUTING EDITORS

David Blatner, Henry Bortman, Christopher Breen, Adam C. Engst, Bruce Fraser, Jim Held, Andy Ihnatko, Ted Landau, Deke McClelland, Tom Negrino, Nancy Peterson, David Pogue, Stephan Somogyi, Franklin N. Tessler

L A B

DIRECTOR OF PRODUCT EVALUATION Kristina De Nike

TEST MANAGER James Galbraith

SENIOR LAB ANALYST Jeff K. Milstead

ASSOCIATE TECHNICAL ANALYSTS Ulyssis Bravo,
Jason Cox,
Brett Larson

C O P Y E D I T

MANAGING EDITOR Jennifer Werner

ASSISTANT MANAGING EDITOR Charles Purdy

COPY EDITORS Diane Ollis,
Sue Voelkel

A R T A N D D E S I G N

DESIGN DIRECTOR Sharon Anderson

ART DIRECTOR Marlene Sezni

ASSOCIATE DESIGNER Jackie Goodman

DESIGN ASSOCIATES Amy Conger,
Alissa Mach

PREPRESS CONSULTANT Stephen Sugg

CONTRIBUTING DESIGNER Jennifer Steele

M A C W O R L D P R I C E F I N D E R . C O M

ASSISTANT PRODUCER Cathy Begien

I N T E R N A T I O N A L E D I T O R S

Steven Noble, Australia; Bernard Le Du, France; Andreas Borchert, Germany; Enrico Lotti, Italy; Yoshio Moriya, Japan; Tomasz Bitner, Poland; Daniel de Blas, Spain; Nils Holmlöv, Sweden; Anderson Huang, Taiwan; Bahattin Apak, Turkey; Simon Jary, United Kingdom

APC introduces the best protection available for your Mac.

8 million computer users can't be wrong about APC power protection

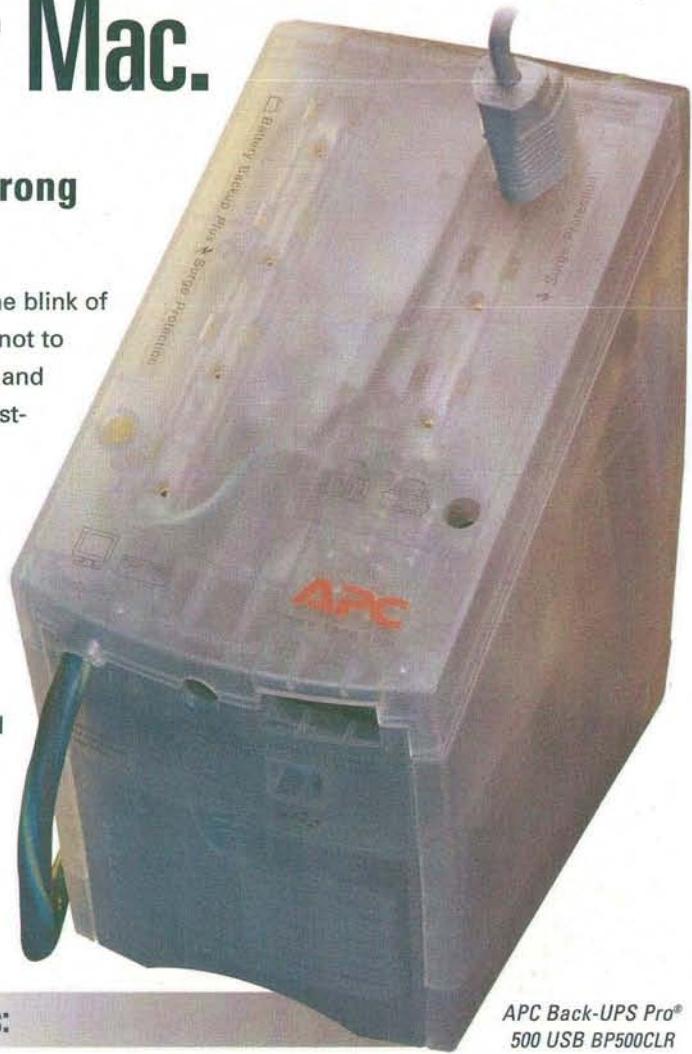
Don't let a lightning storm destroy your Mac system in the blink of an eye. Your hard drive, modem and RAM are all at risk, not to mention peripherals like your zip drive, scanner, monitor and printer. Rely on an APC Back-UPS Pro® to save your investments from high voltage surges.

APC power protection also provides clean, continuous power that lets you function without frustrating interruptions, unlike cheap power strips that don't prevent any of the power problems that can cause keyboard lock-ups, systems crashes, and lost Internet connections.

And if your system is ever damaged by a surge, even lightning, APC's Lifetime Equipment Protection Policy will pay up to \$25,000 to replace your equipment.

* *(see policy for details)*

Discover why 8,000,000 customers trust in APC's Legendary Reliability and protect your Mac system with an APC power protection unit today.



APC Back-UPS Pro®
500 USB BP500CLR

An APC Back-UPS Pro 500 USB provides:

- Emergency battery power for continuous uptime to help save your data through brief power outages
- Auto-shutdown software that saves your files and data, even when you're away from your computer
- Audible and visible alarms alert you to power events as they occur
- \$25,000 Equipment Protection guarantee
- 2 year comprehensive warranty
- iMac colored configurable speaker guards to match your computing environment



APC Back-UPS Pro® 500:
"APC's latest plugs into a USB port, making it completely painless to protect your PC from power snafus and electrical spikes."
- PC Computing 4/99



APC
Legendary Reliability™



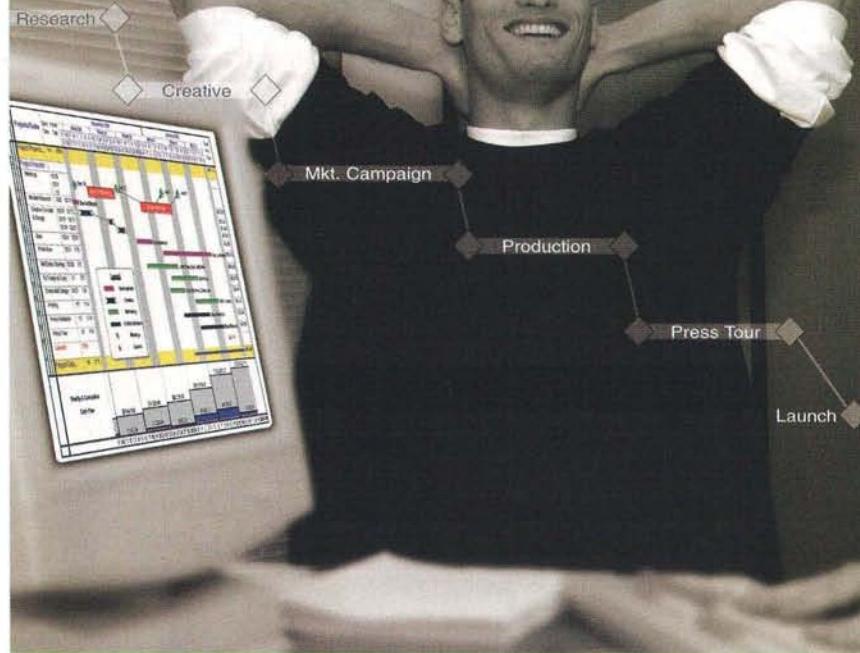
Enter to win a clear APC Back-UPS Pro® 500 for your Mac!

Enter to win APC's legendary power protection for your Mac, a \$179.99 value! All entrants will also receive an "Are You at Risk" Kit. (See APC's Web site for complete promotion details)

Enter now: Visit <http://promo.apc.com> Key Code a466y • Call 888-289-APCC x4051 • Fax 401-788-2797

©2001 American Power Conversion. All Trademarks are the property of their owners. APC1D0EF-USA • PowerFax: (800)347-FAXX • E-mail: apcinfo@apcc.com • 132 Fairgrounds Rd., West Kingston, RI 02892 USA

Macworld



One incredibly successful project manager.

What does this guy know about managing a project that you don't? He knows that with FastTrack Schedule 7.0, it's a snap to organize, track and manage all his project details. In minutes, project plans come to life in rich, colorful schedules that are sure to turn heads and get results.

Whether you have a day's worth of tasks or a yearlong project, FastTrack Schedule's three distinct views display your information the way you want—as a schedule, a calendar, or as a resource graph that tracks the people, equipment, and materials essential to project success.

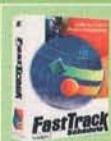
And with our new compatible Palm OS version of FastTrack Schedule, you can sync schedules between your desktop and handheld. So even when you're on the go, your schedules are right at your fingertips for easy viewing and editing. For a free demo version or to order, call us today at 800.450.1982 or visit www.aecsoft.com.

Easily the best in Project Scheduling!

AEC SOFTWARE **Details**

FastTrack
Schedule
for Palm OS

FastTrack
Schedule
Version 7



© 2001 AEC Software, Inc. All rights reserved. Corporate names and trademarks stated herein are the property of their respective owners. Outside the United States, please call 703.450.1982 for information.

Circle 84 on card or go to www.macworld.com/getinfo

PRESIDENT AND CEO Colin Crawford
VP/CHIEF OPERATING OFFICER Stephen Daniels
DIRECTOR OF FINANCE Eos de Feminis
ACCOUNTING COORDINATOR Ronda Blitner
BILLING MANAGER Ricardo Sandoval
VP OF HUMAN RESOURCES Sue Murphy
HUMAN RESOURCE MANAGER Su-Tsen Wu
CHIEF INFORMATION OFFICER Lynn Heiberger
NETWORK SERVICES MANAGER Sean Greathouse
IT MANAGER Jennifer Torres
IT SPECIALIST Jose "Peps" Jara

DISPLAY ADVERTISING SALES

VP OF SALES/PUBLISHER Steve Plevin (415/243-3509)
ASSOCIATE PUBLISHER, EAST Cynthia Ramsey (973/243-1197)
SALES BUSINESS MANAGER Gabrielle Lindsley (415/243-3578)
SALES & MARKETING COORDINATOR Kasey MacMullen (415/243-3642)
NATIONAL ACCOUNTS MANAGER Paul Bonarrigo (508/533-4020)
ACCOUNT EXECUTIVE Jo Zottarelli (516/277-4134)
NATIONAL ACCOUNTS MANAGER Sara Culley (831/475-0565)
ACCOUNT EXECUTIVE Margaret Level Green (415/243-3582)
REGIONAL ACCOUNTS MANAGER Coretta Wright (415/243-3615)
ACCOUNT EXECUTIVE Michelle Davis (415/243-3577)
SALES ASSISTANT Jim DeCleene (415/243-3662)
SALES ASSISTANT Janecke Hausken (415/243-3583)
SHOWCASE ACCOUNT MANAGER Niki Stranz (415/243-3664)
SHOWCASE ACCOUNT MANAGER Carol Johnstone (415/243-3691)
SHOWCASE SALES ASSISTANT Franck Zamora (415/243-3628)
ONLINE SALES MANAGER Doug Detlefsen (415/243-3598)

MARKETING

DIRECTOR OF MARKETING Hilary Weber
MARKETING COMMUNICATIONS
MANAGER Sharon L. Cordes
MARKETING SERVICES MANAGER Joanna Bock Colombo
MARKETING INTERN Jae Kim

PRODUCTION

PRODUCTION DIRECTOR Steve Spingola
PREPRESS MANAGER Alan Anzalone
AD COORDINATOR Megan Matteoni

ONLINE

SENIOR TECHNOLOGY DIRECTOR Paul Forrester
SENIOR WEB PRODUCER Christina Gonzales
ONLINE PRODUCTION MANAGER Ron Neal
WEB PRODUCTION ASSISTANT Margaret Perez

Macworld is a publication of Mac Publishing, L.L.C. Macworld is an independent journal not affiliated with Apple Computer, Inc. Macworld, MacUser, MacWeek, Macworld Interactive, Macworld Shopper, MW, MW Lab, MW Shopper, The Desktop Critic, Expert Graphics, Quick Tips, Star Ratings, Buyers' Tools, Streetwise Shopper, and Conspicuous Consumer are registered trademarks of Mac Publishing, L.L.C. Apple, the Apple logo, Mac, and Macintosh are trademarks of Apple Computer, Inc. Printed in the United States of America. Copyright © 2001 Mac Publishing, L.L.C. All rights reserved.

WE FOLLOW UP EVERY PURCHASE WITH A PHONE CALL.

SOMEONE HAS TO REMIND YOU TO EAT.



Catalog, pg. 30



It's quite common for our customers to become, shall we say, obsessed with our AnthroCarts. A place for all your things, set exactly where you want them...it's enough to keep you working away the hours, without regard to your basic needs. So our follow-up call is just one of the many things we do to make sure all

TECHNOLOGY FURNITURE® is well. Visit our Web site. We'd love to send you a catalog! ANTHRO.COM or 1-800-325-3841.



Vehicle.



Passengers.



Get to your destinations faster and easier with SmartDisk products designed to meet the demands of your portable lifestyle.

Keep your engine running with power accessories for your PowerBook or iBook available at www.smartdisk.com.

SMARTDISK
Simplifying the Digital Lifestyle™
www.smartdisk.com

Circle 74 on card or go to www.macworld.com/getinfo

Macworld

HOW TO CONTACT MACWORLD

Subscription Information and Services

Phone	800/288-6848 or 850/682-7624, from the United States and Canada 303/604-7445, from all other locations
U.S. Mail	Macworld Subscription Services P.O. Box 54529, Boulder, CO 80322-4529 (Include a mailing label with correspondence.)
World Wide Web	http://service.macworld.com (for service) or http://subscribe.macworld.com (to order)
E-mail	macworld@neodata.com (Send your full name and the address at which you subscribe; do not send attachments.)
Fax	850/683-4094, from the United States and Canada 303/604-0518, from all other locations

Subscriptions

The one-year (12-issue) subscription rate is \$34.97 in the United States and \$54.97 for all other countries. The rate for a one-year (12-issue) subscription with the monthly CD-ROM is \$54.97 in the United States and \$74.97 for all other countries. Checks must be made payable in U.S. currency to *Macworld*. Please allow 3 to 6 weeks to receive your first issue or for changes to be made to an existing subscription.

Back Issues of Macworld

Back issues (subject to availability) are \$8 per issue for U.S. delivery (\$12 outside the United States); prepayment in U.S. currency to *Macworld* is required. Send check or money order to Back Issues, *Macworld*, P.O. Box 53131, Boulder, CO 80322-3131.

Reprints and Permissions

You must have permission before reproducing any material from *Macworld*. Write to *Macworld*, Reprints and Permissions, 301 Howard St., 16th Fl., San Francisco, CA 94105; include a phone number. To order reprints of your company's editorial coverage, call Reprint Management Services at 717/399-1900; fax 717/399-8900; e-mail sales@rmsreprints.com.

Mailing Lists

We periodically make lists of our customers available to mailers of goods and services that may interest you. If you do not wish to receive such mailings, please write to us at *Macworld*, P.O. Box 54529, Boulder, CO 80322-4529. Please include a copy of your mailing label.

Macworld on Microfilm

Macworld is available on microfilm and microfiche from UMI, 300 N. Zeeb Rd., Ann Arbor, MI 48106-1346; 734/761-4700.

Macworld Editorial

The editors of *Macworld* welcome your tips, compliments, or complaints. Stories and product reviews from past issues can be located at www.macworld.com. We are unfortunately unable to look up stories from past issues; recommend products; or diagnose your Macintosh problems by phone, e-mail, or fax. Contact Apple toll-free at 800/538-9696, ext. 500, for information on user groups in your area.

Our offices are located at 301 Howard St., 16th Fl., San Francisco, CA 94105; phone 415/243-0505; fax, 415/442-0766.

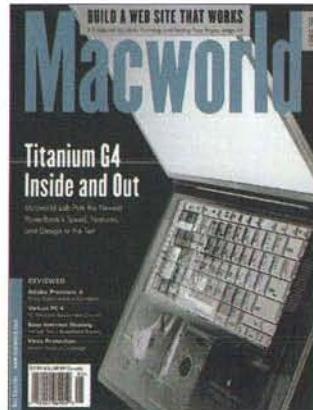
LETTERS TO THE EDITOR Direct all comments and suggestions regarding any aspect of the magazine to letters@macworld.com. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all submissions. All letters published in *Macworld* or *Macworld*.com become the property of Mac Publishing.

MAC 911 Send your questions or tips on how to use Mac computers, peripherals, or software to *Macworld*, Mac 911, 301 Howard Street, 16th Floor, San Francisco, CA 94105; fax 415/442-0766; or e-mail mac911@macworld.com. Please include your name, address, and telephone number. To share tips and discuss Mac problems with other Mac users, visit the Mac 911 forum (www.macworld.com/subject/mac911).

MACWORLD EXPO As the flagship sponsor of Macworld Conference and Expo, *Macworld* encourages all subscribers to attend this exciting biannual industry event. For more information about registration, exhibitor lists, conference schedules, dates, and much more, please visit www.macworldexpo.com.

▼BPA

Forums and Feedback



Restart

The Macintosh universe is all about beginnings this month, whether it's the launch of a sleek new iBook, the early days of a next-generation operating system—or the redesign of *Macworld's* *Feedback* section. We are now including posts from the *Macworld.com* forums beside your

letters and e-mail. The result will be either "übercool," as one forum poster described the Titanium PowerBook G4, or "definitely still a beta," as another reader wrote of Mac OS X. Either way, we're sure you'll let us know—starting now. ■

The Silver Surfer

DR. JOHN TILELLI There are a few blemishes that I believe keep this beauty from perfection ("Inside the Titanium PowerBook G4," May 2001): The aspect ratio of the screen, albeit cool and attention getting, is unconventional; much of the time, it adds little to the task at hand. Anything you put in the DVD drive can rub against the case and self-destruct with only a little rustle of the computer. And I think it's really bad form to put a memory slot under the keyboard and then not have the motherboard recognize that RAM is there when you install it. Sometimes I notice the battery dropping out of the case, killing the machine while I'm working. I use a piece of duct tape for insurance.

ROB POYNTER As much as I enjoyed getting inside the new PowerBook, it seems to me that the battery and DVD-ROM drive have somehow switched places on your cover.

Smash or Trash?

JEFF PERRIN Who's the brainiac who thought it'd be cool to trash an iBook for a corny half-page article ("dieBook," *Buzz*, May 2001)? **SHANE MASSEY** There's a difference between simulating "real-world" abuse and what was done in the piece.

Oh-oh, Canada

STEPHEN POLLARD This is probably Letter No. 2,794 on this subject, but the residents of Pelee Island (Canada's southernmost point) were probably surprised to read that Race Rocks is farther south ("QuickTime Conservation," *Buzz*, May 2001). It may be British Columbia's southernmost point, but it's not Canada's.

It's Letter No. 2,975, actually. And yes, we goofed.—Ed.

Home Sweet Home?

MARK WHEELER While it's true that the built-in Ethernet on Macs

takes advantage of hardware you have already purchased, Michael Penwarden failed to take the value of time into account ("Your High-Tech Home," May 2001). By the time you've spent several weekends cutting holes in drywall, drilling baseboards, stringing wire in crawl spaces, and making several trips for the proper tools, cabling, and adapters, you've made a large investment of time (and perhaps money) in your installed Ethernet network.

LOREN JENKS I realize that retro is in, but the uncanny resemblance between the May 2001 issue of *Macworld* and, say, a 1957 issue of *Popular Science* is unnerving. Dates and technological details aside, the articles and illustrations are almost interchangeable.

Top X List

JON SILVERS I was really looking forward to OS X, but I've found that it's incredibly slow, it takes forever and a day to launch Classic apps, and navigation makes no sense.

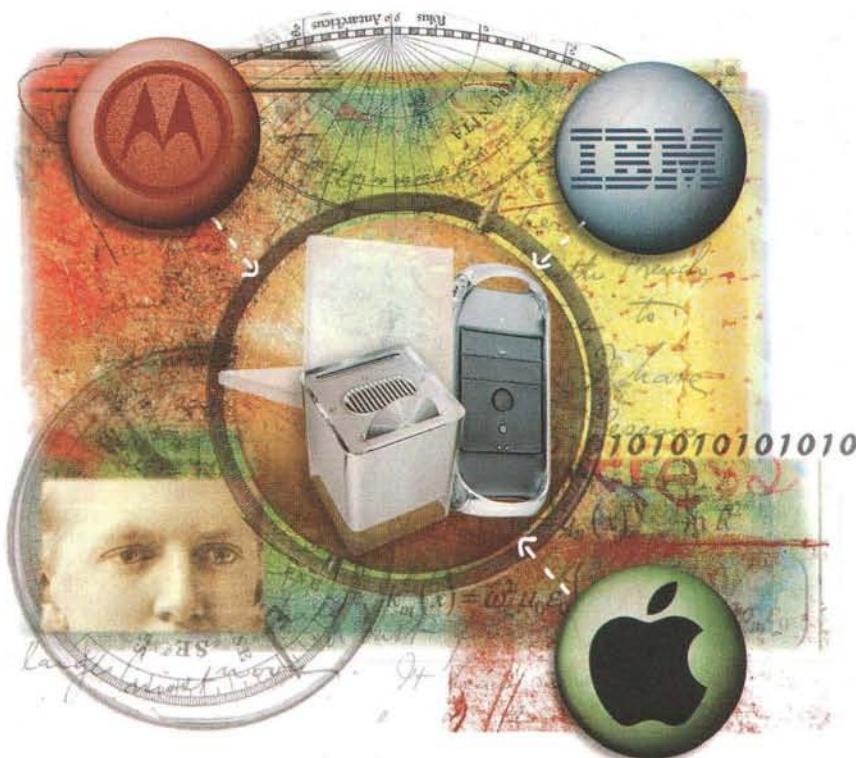
JULIE KHANER I don't agree with you at all. I am really enjoying OS X (except for Classic). I expect it to improve, and I don't want to go back.

JEFFREY CHAPMAN Much of OS X is indeed "un-Mac-like," but that's the price of progress. You can't expect to have change and yet have everything be the same.

Visit our forums at www.macworld.com to post your comments online, or send them to **Feedback, Macworld, 301 Howard St., 16th Fl., San Francisco, CA 94105**, or to letters@macworld.com. Include a return address and daytime phone number. Due to the high volume of feedback, we can't respond personally to each comment. We reserve the right to edit all letters and posts. Published letters and forum posts become the property of *Macworld*.

STAND BY YOUR CPU

APPLE PRAISES IBM AND MOTOROLA, BUT COULD ALLIANCE SOUR?



APPLE EXECUTIVES HAD JUST opened the floor to questions after showing off Mac OS X at a March preview, when a reporter wanted to know about the processors that power the Mac. With only Motorola and IBM producing PowerPC chips, the reporter asked, wasn't Apple becoming too reliant on those two companies? The response from Apple CEO Steve Jobs was swift and merciless: "You don't know what you're talking about."

Indeed, the Apple-Motorola-IBM relationship—forged when the three companies developed the PowerPC chip a decade ago—doesn't show any signs of strain. IBM calls Apple one of its best customers, Apple publicly professes appreciation for its suppliers, and Motorola is just as effusive.

"In the computing space, Apple is one of our oldest and most strategic customers," comments Motorola Director of Communications William A. Swearingen.

Where Did Our Love Go?

If only all Mac users shared that love. IBM and Motorola take more than their share of flak from Mac users, mostly because of the megahertz gap between PowerPC chips and processors from Intel and AMD.

Whether Intel's Pentium chip is faster than a PowerPC is debatable (see "More Than Just Megahertz," *Buzz*, July 2001), but it's certainly a marketing nightmare for Apple. You can talk about gigaflops and dual-processor systems, but in the end casual computer shoppers are likely to gravitate toward the machine with the higher megahertz rating.

Add to this the fact that Motorola and IBM also sell the PowerPC as an *embedded processor*, a chip that runs consumer electronic devices at a set power level. Faster clock speeds aren't a priority for these devices; embedded chips just have to keep an appliance running. After all, you didn't buy your VCR because its processor is faster than a rival brand's.

The faster clock speeds Mac users crave are not necessarily a high priority for the PowerPC's manufacturers, because IBM and Motorola sell far more PowerPC chips to the embedded processor market than to Apple. Therefore, neither company is likely to change the chip's design just for Apple's sake. That has critics fuming that IBM and Motorola care more about developing the PowerPC for embedded uses than about meeting Apple's desktop needs.

Which is nonsense, according to Motorola's Swearingen. "The perception that development in embedded PowerPCs is contrary to [advances in] desktop PowerPCs is wrong," he says. "In fact, it's the opposite. The embedded market fuels desktop development."

News, Views,
and Chatter
from the
World of Macs

AltiVec Inside?

There are other potential friction points. Motorola and Apple have embraced AltiVec as a way to get better 3-D, multimedia, and design performance. IBM hasn't.

IBM plans to add Single Instruction Multiple Data (SIMD) support to future PowerPCs. SIMD resembles AltiVec in that it allows more-efficient processing of complex redundant data. IBM's take on it could be different; nevertheless, IBM continues to show no interest in AltiVec.

Still, the AltiVec schism between IBM and Motorola may not necessarily be a bad thing, at least from Apple's perspective. If the chip makers take the PowerPC in different directions, Apple could enjoy the choices that two different suppliers would have to offer.

So don't look for Apple to ditch IBM or Motorola anytime soon. Apart from the companies' longstanding relationship, the PowerPC is one of few viable alternatives to X86 processors such as the Pentium. Dropping the PowerPC would cost Apple a great selling point: originality.—DAVID READ

ENERGY CRUNCH

POWER MACS

The power crisis hitting California is spreading to other Western states and threatening to become a national problem. Power prices, which are tied to natural-gas costs, are on the rise across the country. So people are on the lookout for ways to knock down some of those higher digits appearing on their bills.

They could start by buying a Mac.

In general, the Mac is a more energy-efficient machine than many Wintel PCs (see "Power Facts"). In an eight-hour day, a business with 50 733MHz Power Mac G4s is going to consume fewer watts than a company with 50 Pentium 4-powered Wintel machines, up to 19,600 fewer watts if you assume that the chips are at the high end of their average consumption range.

Mac users have other ways to cut electric costs, says Thomas R. Schneider, the Consumer Energy Counsel of America's vice president of policy and chief technical officer, and chairman of the Energy Policy Committee for the IEEE USA (Institute of Electrical and Electronics Engineers): make sure all their peripherals are Energy Star compliant (they'll sport an identifying label) and run them in power-saving mode.

Schneider also recommends switching things off instead of letting them sleep. The idea that devices consume more power when

they're being switched on and off than they do when they're sleeping is a common misconception.

"When you go out

for the evening, turn off your devices at the power strip," Schneider says. "Your monitor consumes energy even in the off mode." That stops electronic devices from "leaking" electricity—consuming small amounts of power even while off so that they can power on quickly.—MATTHEW HONAN



POWER FACTS

■ Apple ships products with power management enabled. Windows machines often require users to turn those features on. While many PC users know that, some do not, and others simply won't bother with changing anything.

■ Newer Macs in sleep mode significantly beat the government's Energy Star requirements. To be Energy Star compliant (meeting certain energy-efficiency standards) a system must use 25 watts or fewer per hour while in sleep mode, among other things. A 733MHz Power Mac G4, in contrast, uses only 13.7 watts. And shutting the machine down entirely saves an additional 4.1 watts—maybe not much for individuals, but it could mean significant savings for networks.

■ The G4 chip consumes less power than a Pentium 4. Take the PowerPC 7410 used in 733MHz Power Mac G4s: it uses 12 to 15 watts in average-consumption mode. Run processor-intensive tasks in Adobe Photoshop, and consumption rises to about 30 watts. A Pentium 4 consumes from 49 to 64 watts during average use.

COOL STUFF

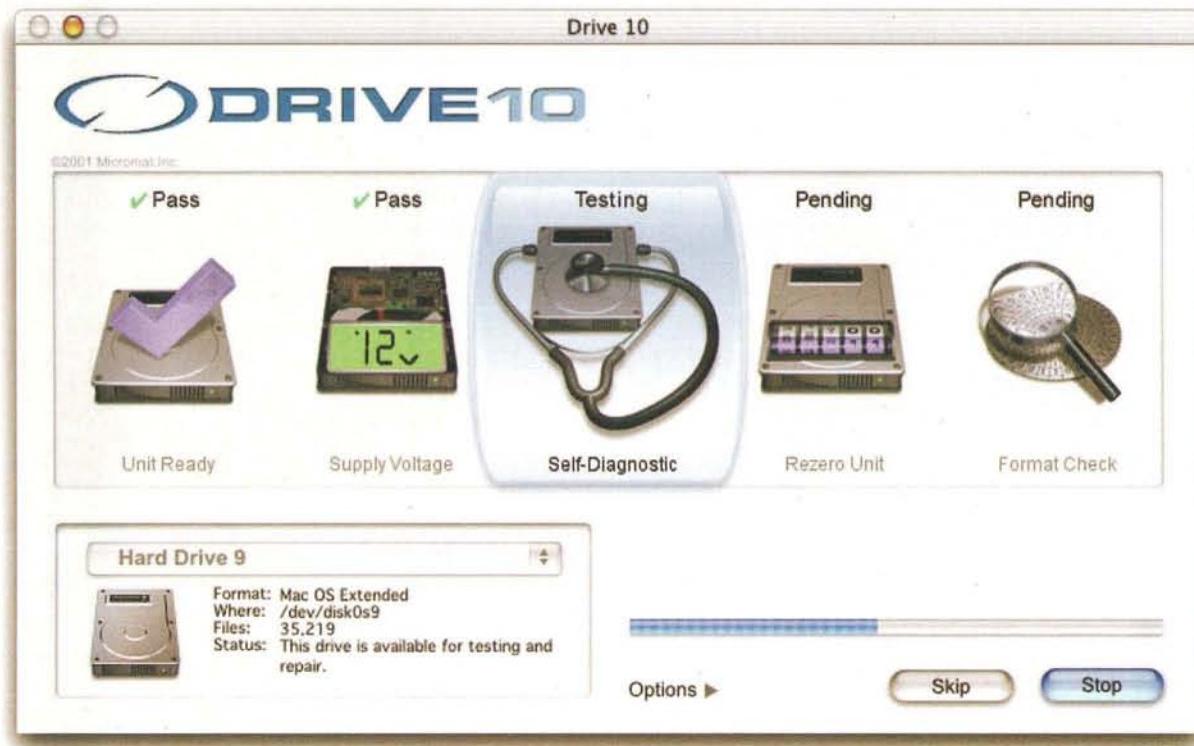
The Camera and the Deep Blue Sea

Digital-camera makers have boosted resolutions, shrunk sizes, and squeezed a bevy of features into their products. But they still haven't figured out a way to make their cameras waterproof.

Digital circuitry, it seems, does not respond well when introduced to water. Until it does, there's always the PT-002 protective case from Olympus (\$130; 800/645-8130, www.olympusamerica.com). Just 14.5 ounces of transparent polycarbonate, the casing keeps your Olympus digital camera high and dry when you take it onto the ski slopes, out to the beach, or into the briny deep. The PT-002 casing is compatible with four Olympus models—the D-220L, D-320L, D-340L&R, and D-360L—and is waterproof to a depth of three meters. A \$30 maintenance kit gives you some silica gel packets and extra O-rings to keep the PT-002 watertight. When you bring your \$400 digital camera on a snorkeling excursion, the last thing you want it to be is all wet.—PHILIP MICHAELS



Drive safely.



**The first and final disk utility
for Mac OS X**

Don't entrust your OS X drive to ancient utilities.
Protect your data and drive safely with



DRIVE10

From the creators of TechTool Pro®

Micromat Inc.

800-829-6227

707-566-3831

info@micromat.com

www.micromat.com

©2001 Micromat, Inc. All rights reserved. Drive 10 is a trademark of Micromat, Inc. TechTool is a registered trademark of Micromat, Inc.

See us at Macworld Expo, booth #1337

Circle 37 on card or go to www.macworld.com/getinfo



PRO FILE

Science Fact

Q&A with DR. MAE JEMISON

Dr. Mae Jemison has a ride aboard a space shuttle on her resume. But among her interests these days is The Earth We Share, a program that promotes basic science literacy—with some help from the Mac.—ADELIA CELLINI

More Info: www.macworld.com/2001/08/buzz/jemison.html

LINK

What's the view like from space? Dr. Jemison talks about her mission aboard the *Endeavor* in an extended interview on Macworld.com.

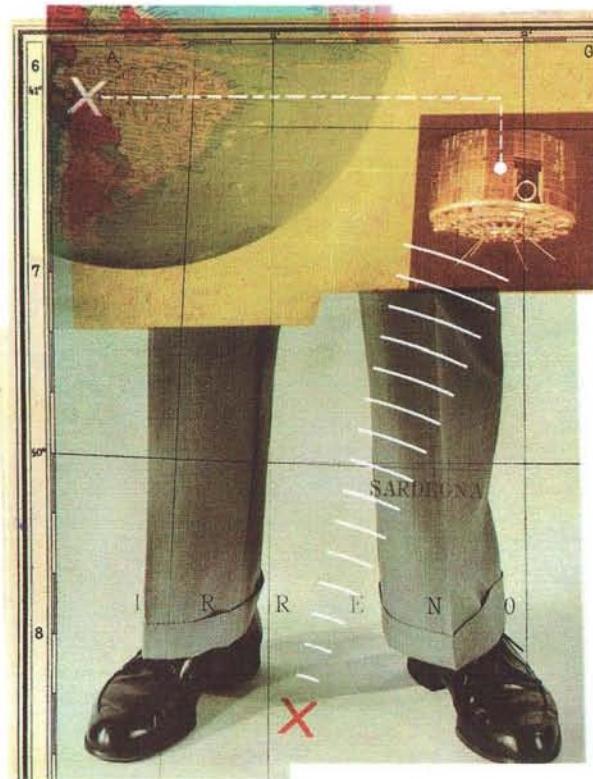
Q: Explain The Earth We Share.

A: It was started in 1994, and its goal was to build a science literacy curriculum that was experiential in nature. I believe that the most important thing one gets from a science education is the ability to critically assess things and problem-solving skills. We wanted to create this program for 12- to 16-year-olds.

Q: How do Macs figure into your work?

A: We used iMovie to create our trailers for The Earth We Share. I also made an iMovie that used to be on the Apple-Masters Web site. Also, eight student winners of an international essay contest in connection with The Earth We Share program went out for a day of adventure. We used iMovie to make two-minute blurbs about their experiences. And of course, I do presentations on Macs as well.

BUZZ



GPS SHOWDOWN

OFF THE MAP

Maybe it's because the government stopped degrading the accuracy of its Global Positioning System. Maybe it's because prices of satellite-delivered navigational tools have fallen. Whatever the reason, GPS devices are everywhere—in cars, attached to handheld PDAs, and in your Mac.

But how good are GPS devices at getting you from point A to point B? To find out, we put three devices to the test on the wild, untamed streets of San Francisco.

Our experiment included a DeLorme Earthmate, a Geo-Discovery Geode, and a Nexian HandyGPS module. And just

to see how GPS technology stacked up against a low-tech alternative, we also tested a simple folding map. Our four contestants set out from a common point to find a fixed set of latitudinal and longitudinal coordinates (or a street address, in the case of our map-wielding participant).

The verdict? GPS devices are great for finding obscure trailheads and out-of-the-way fishing holes—but in a race against time on city streets, never bet against the person with a map.—MATHEW HONAN



Any Which Way You Can

COMPANY	PRODUCT	PRICE	CONTACT	TIME	COMMENTS
DeLorme	Earthmate	\$157	800/561-5104, www.delorme.com	27 minutes	"You could definitely use the Earthmate in a pinch. Once you get a fix, it works well. The mapping software it came with was more useful."—Mathew Honan
GeoDiscovery	Geode	\$289	888/206-6444, www.geodiscovery.com	15 minutes	"The Geode was pretty straightforward. I'd still want a map on hand. Maps don't need batteries."—Adrienne Robillard
Nexian	HandyGPS	\$149	858/623-1550, www.nexian.com	never*	"Using the HandyGPS was frustrating; sometimes it didn't see a satellite. You have to hold the PDA up in the air, which can make people stare."—David Weiss
Mapgroup International	San Francisco Pop Out Map	\$5	800/617-6768, www.mapgroup.com	8 minutes	"I had more trouble folding the map than I did using it to find my location. I did worry that young toughs would mistake me for a tourist."—Philip Michaels

* Try as he might, Weiss never got a fix on the satellite and was unable to reach the finish line.

Product Watch

Adobe Offers InDesign Sneak Preview

Adobe hasn't even announced a new version of InDesign, let alone a shipping date. But that's not stopping the company from showing off several features it plans to include in future versions of the page-layout application. And Adobe plans on Carbonizing the next major InDesign update, so it will run in Mac OS X. The coming additions—from transparency and table tools, to a redesigned Print dialog box—may please even InDesign critics.—DAVID BLATNER

● OBJECT TRANSPARENCY

The most impressive addition lets you change the opacity of anything on your page—text, boxes, or pictures—just as you can in Photoshop and Illustrator 9. InDesign will also add a Feather feature that will soften edges and recognize transparency in Photoshop files, which means you may no longer need to make clipping paths.

● LONG-DOCUMENT FEATURES

These include indexing, table-of-contents, and multiple-document "book" tools. The next version of InDesign will build a table of contents based on style sheets in a document and automatically create hyperlinks when you export a PDF file. InDesign will include a Hyperlinks palette to add additional hot links in your documents that will function in exported PDF and HTML files.

● TABLE-MAKING TOOL

Adobe hasn't revealed very much, but the company does promise that this oft requested feature will come to InDesign. When it does, the program will be able to import XML from a database (or tab-delimited text from a Microsoft Excel document) into a table, where it will be automatically formatted. The table can dynamically grow to fit the text—and if there's more information than can fit onto one page, InDesign will let you link table data across page breaks.

● XML IMPORT AND EXPORT

Adobe says all its products will be XML aware, including InDesign. This means you'll be able to import and export document content by tagging the content's structure instead of tagging what the content should look like.



HARDWARE

DIGITAL CAMERAS

- **The PowerShot S110**, a 2.1-megapixel camera designed by Canon (\$599; 800/652-2666, www.usa.canon.com): The next-generation digital Elph model, it features 2x zoom, support for QuickTime AVI files, and adjustable resolution from 1,600 by 1,200, to 640 by 480 pixels.

- Four cameras from Olympus America (800/622-6372, www.olympusamerica.com): The **Brio D-100** (\$299) is a 1.3-megapixel camera with 1,280-by-960-pixel resolution and a 2x digital zoom. The **Camedia D-510 Zoom** (\$400) is a 2.1-megapixel camera with a maximum resolution of 1,600 by 1,200 pixels and a 3x optical, 9x digital zoom. The **Camedia Brio Zoom D-150** (\$450) is a 1.3-megapixel camera with adjustable resolution—from 1,280 by 960, to 640 by 480 pixels. The **Camedia C-700 Ultra-Zoom** (\$699) is a 2.1-

megapixel camera with a 10x optical, 27x digital zoom.

DISPLAYS

- The 17-inch flat-panel

Apple Studio Display

(\$999; 800/692-7753, www.apple.com): The monitor, which uses only a single power cable, features a resolution of 1,280 by 1,024 pixels, 16.7 million colors, a 160-degree viewing angle, and two built-in USB hubs. Apple also announced it will now sell only LCD monitors, dropping its CRT displays.

PRINTERS

- Eight monochrome laser and multifunction printers from Lexmark (888/539-6275, www.lexmark.com): The **Lexmark W820** (\$2,899 to \$3,999) is a 45-pages-per-minute (ppm), high-volume laser printer for large workgroups. The **Lexmark T622** (\$1,699 to \$2,199) and **T620** (\$1,099 to \$1,699) have print speeds of 40 ppm and 30 ppm, respectively, for large and medium workgroups. The **Lexmark T522** (\$899 to \$1,549) and **T520** (\$699 to \$1,129) print at 25 ppm and 20 ppm, respectively. The **Lexmark X522 MFP** (\$3,649) and **X520 MFP**

MAC STUFF

Of Mice and Men

Before the \$70 Cordless MouseMan Optical, from Logitech (800/231-7717, www.logitech.com), scurried onto the scene, no mouse had successfully mixed wireless and optical technologies. The farmer's wife might have lopped off its tail, but the MouseMan is anything but blind—it takes pictures with an 800-dpi sensor, saving you from wires, balls, and

pads. It runs on a frequency of 27MHz, rather than 900MHz, so it's less likely to run into interference from other cordless devices around the office. AA batteries, a battery-life display, and power-management features from Agilent Technologies mean the MouseMan won't conk out on you unexpectedly. Go ahead; see how it runs.—MATHEW HONAN





What's HOT

A QUICK LOOK AT THE WORLD OF TECH

1. A Mac "Genius Bar" is among the highlights of new Apple Stores. Plan to feature "Evil Genius Bars" scrapped after staff's repeated attempts at world domination are foiled by meddlesome Hall of Justice.
2. AOL hikes its monthly unlimited-service fee to \$23.90. The \$1.95 increase covers the rising costs of infrastructure, technical support, and flooding your mailbox with spam.
3. Apple touts redesigned, 4.9-pound iBook as the ideal portable for students. But after one semester away at college, it comes home weighing an extra 15 pounds.

(\$1,999) multifunction printers offer copying, faxing, and scanning capabilities.

The **Lexmark X720 MFP** (\$4,699) does color printing, copying, network scanning, and faxing.

● Samsung's **ML-1210** laser printer (\$199; 888/887-8536, www.samsungusa.com): Targeting small businesses and home offices, it has a speed of 12 ppm.

easy to extract (\$499; upgrade, \$79).

● **BBEdit 6.1**, from Bare Bones Software (781/687-0700, www.barebones.com): The updated HTML and text editor now runs natively in OS X (\$119; upgrade, \$39).

PRODUCTIVITY SOFTWARE

● **FileMaker Pro 5.5** (800/325-2747, www.filemaker.com): The database application has been rewritten to run natively in Mac OS X, with enhanced support for ODBC-compliant databases and a revamped Instant Web Publishing feature (\$249; upgrade, \$149).

SYSTEM SOFTWARE

● **Symantec** (800/441-7234, www.symantec.com) utilities updated to run on Mac OS X: **Norton AntiVirus 7.0.2**

has been Carbonized to allow for manual scanning and repairing viruses in the native layer of OS X. Features such as autoprotect, simplified preferences, and e-mail scanning work only in the Classic layer of the OS.

Norton Personal Firewall

1.0.2 retains most of its features running natively in OS X, with the exception of control-strip access. At this

time, **Norton Utilities** won't run natively in OS X, but version **6.0.2** improves compatibility with OS X when running the software from a bootable CD. Users can get the updates via each product's Live Update feature. Customers who bought Norton products last fall can order a \$15 replacement CD.



ANNOUNCED

● The discontinuation of Casady & Greene's

SoundJam MP (800/359-4920, www.casadyg.com): At the request of

the MP3 application's developers, the publisher will continue to offer technical support for SoundJam. Apple bought the program from the developers last year and will now focus on developing its iTunes, an MP3 application that has many of SoundJam's features.

—Compiled by PHILIP MICHAELS



SOFTWARE

DESIGN SOFTWARE

● **Adobe PageMaker 7.0** (800/833-6687, www.adobe.com): The publishing software now allows users to merge text and graphics exported from database and spreadsheet applications. A new Place PDF command puts PDF files created by Photoshop and InDesign inside of PageMaker documents.

The application can create tagged PDF files in which the contents are reflowable, accessible, and

SOFTWARE UPDATES



Adobe Acrobat eBook Reader 2.1

Reader for eBook format

America Online 4F

Beta Mac OS X client for online service

Analog 5.0.1

Web-server-log analysis tool

Apple CarbonLib 1.3.1

Update for Carbon-based apps

Apple Open Transport 2.7.6

Networking components for OS 9.1

Autodesk's formZ 3.8

3-D-modeling program update

Extension Overload 5.8.3

Extension and control-panel tool

FontAgent 8.2

Enhanced font validation

HP Precision Scan 3.0.1

Supports ScanJet 5300c, 5370c, and 6300c scanners

ICQ 2.6a29

Chat and messaging client

IomegaWare 3.0

Zip and Jaz drivers and software tools

LaCie Silverlining Pro 6.4.2

Updated tool for testing, partitioning media

Linksys 8-port cable and DSL router 2.38.1

Firmware for BEFSR81 router

LiveStage Pro 3.0

QuickTime 5 interactive authoring environment

Metrowerks CodeWarrior Pro 6.2

Maintenance update for development software

Microsoft Internet Explorer X 5.1.1

Public preview of Web browser for Mac OS X

MindVision Installer VISE 7.3

Developer software-installation tools

OmniWeb 4.0.1

Web browser for Mac OS X

Poser Pro SR1

Service update, plug-in support for animation tool

Resorcerer 2.4

Resource and data-file editor

Rio 800 1.56

Firmware update for MP3 player

ScheduleOnline Mac Sync 1.4

Palm conduit for ScheduleOnline's Web tools

TechTracker Pro for OS X 1.2

Carbon version of software-update client

Virex Command Line Scanner 7.0b2

Beta virus-protection program for Mac OS X

For these and other current updates, visit:

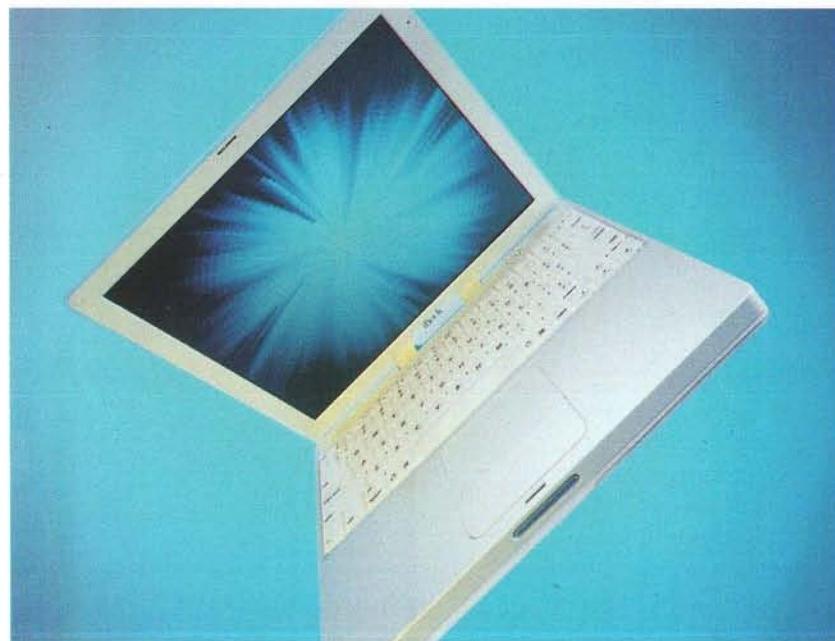
www.macworld.com/subject/updates

BUZZ

iBooks

Consumer Portables Break Barriers in Price, Features, Excitement

BY ANDREW GORE



Building an exciting new notebook computer when price is not a concern is one thing. Building an exciting new notebook computer when price is the foremost consideration is another thing entirely. And Apple's new iBooks *are* another thing entirely—they're consumer portables that defy the label "low end."

Svelte by Design

In the world of sub-\$2,000 portable computers, trade-offs are unavoidable. Want a small, lightweight machine? You'll have to give up an internal CD-ROM or DVD-ROM drive and many port options, such as high-speed peripheral connections or Ethernet. Otherwise, be prepared to lug around a 6-pound behemoth. And as for design, "boxy but good" would be a generous description of most Windows-based laptops.

Enter Apple. Its first foray into the consumer-notebook market—the original iBooks—delivered the features,

but at a weight that made schoolchildren stagger. Now Apple has come back with an inexpensive portable-computing product of maximum utility and minimum weight.

The new iBook offers all the features you could want in a machine with a starting price of \$1,299: a 10GB hard drive, a 1,024-by-768-pixel screen, 10/100BaseT Ethernet and FireWire connections, two USB ports, AirPort readiness, a built-in 56-Kbps modem, composite and VGA video out, and a 500MHz G3 processor.

But the higher-end configurations go a step further, giving you 128MB

iBOOK WITH CD-ROM DRIVE

Rating:

Pros: Lightweight; elegant design; full set of features; low price.

Cons: Only 64MB of RAM, limiting performance and the ability to run Mac OS X.

Company's estimated price: \$1,299

Company: Apple Computer, 800/692-7753, www.apple.com

iBOOK WITH COMBO DRIVE

Rating:

Pros: Lightweight; elegant design; full set of features; low price; new combination drive is a breakthrough.

Cons: None significant.

Company's estimated price: \$1,799

Company: Apple Computer, 800/692-7753, www.apple.com

iBOOK WITH DVD-ROM DRIVE

Rating:

Pros: Lightweight; elegant design; full set of features; low price.

Cons: None significant.

Company's estimated price: \$1,499

Company: Apple Computer, 800/692-7753, www.apple.com

of RAM, a DVD-ROM drive, and—a first for Apple portables—a combination CD-RW and DVD-ROM drive, all in a 4.9-pound portable whose sleek design makes it as easy to look at as it is to hold and carry about.

And, building on the earlier models' well-deserved reputation for ruggedness, this iBook is twice as durable, Apple claims. Our own tests show that the new iBook is a tough customer: despite extensive banging around, rapid temperature and humidity changes, and even some blunt-force impacts, our units showed only a couple of tiny scratches. The

one exception was the keyboard: we inadvertently dropped a test unit on a hardwood floor, and although the iBook still ran just fine and the case had only a small nick, the force of the impact popped off the shift key, and we were unable to remount the key properly.

In stark contrast to the original iBooks' rainbow of colors, the new iBook is available only in elegant white. It's great that both professionals and students can tote these models without embarrassment, but we hope that Apple will offer other color options at some point.

iPowered?

From a design standpoint, the new iBook is groundbreaking. From a performance standpoint, it's almost identical to the model it replaces (*Reviews*, December 2000).

The new iBook has a moderately faster CPU—clocked at 500MHz, up from 466MHz. But its G3 processor still sits in a 66MHz bus and has just a 256K Level 2 cache, so the speed boost is largely lost in the shuffle. As you can see from Macworld Lab's benchmark tests, the 500MHz iBooks with 128MB of RAM have a Speedmark score nearly the same as the 466MHz iBook's—even with twice the memory. (The new model with only 64MB of RAM is actually a bit slower.) By comparison, the 400MHz PowerBook G4, with 1MB Level 2 cache and a 100MHz system bus, performs better by at least 20 percent across the board.

We understand that all consumer portables entail compromises, but we wonder why Apple continues to offer just 64MB of RAM in its entry-level machines when memory is dirt cheap—and when Mac OS X requires at least 128MB. And the iBook has only one RAM expansion slot, permanently limiting the expansion potential of the low-end configuration.

At least the new design puts everything within relatively easy reach: both the AirPort and RAM slots are located right under the keyboard. We just wish Apple would start including

a screwdriver with models that require one to get to such an essential upgrade slot.

Apple's redesigned battery is a vast improvement over the "stick" used in earlier models. Although a screw lock still secures the battery (no doubt for durability), there's now only one screw. The new battery also adopts a smaller, square design that feeds power to the iBook through metal contacts instead of a ribbon cable, so it's easier to swap batteries.

As for battery life, Apple claims the new iBook can get up to five hours from a single charge. However, in our tests, which use moderate power-saving measures, these models delivered only three hours of run time.

Finally, there's the new screen: Apple has increased the resolution from 800 by 600 pixels to 1,024 by 768. The extra real estate is a boon, but because the screen size remains at 12.1 inches, the result is smaller pixels, which can make text difficult to read. You could switch to a lower resolution to increase the pixel size, but that means fuzzier pixels. Or you could use the new VGA adapter to connect a larger external monitor.

Speaking of displays, the iBook uses the same graphics controller as the last-generation iBook and the current-generation PowerBook. The ATI Rage 128 Mobility chip set is getting a bit long in the tooth and just can't keep up with the latest games—a problem in a laptop aimed at students.

Driven to Success

What everyone really wants to know, though, is how that new combination drive works. We're happy to report that it does indeed burn CDs and play DVDs without any obvious drawbacks. Of course, there's the small matter of having to first make a disk image of the CD you want to duplicate and then put a blank CD into the burner. But this minor inconvenience should actually increase the reliability of disc-to-disc copies.

In fact, we found the CD-RW/DVD-ROM combo so convenient that it justified that iBook's price—\$300 more than the price of the \$1,499 DVD-ROM iBook, which otherwise offers the same features.

Macworld's Buying Advice

As far as consumer portables are concerned, the trend seems to be including fewer features and giving less thought to design. Only Apple is bucking this trend. The new iBook is a small wonder—a beautifully crafted compromise that is true to Apple's philosophy of delivering feature-complete notebooks at an exceptional price. Our only major quibble is with the 64MB configuration, which unnecessarily limits the system's performance and makes it impossible to run Mac OS X. Otherwise, we found the new iBooks to be reliable, rugged, elegant, and a pleasure to use. ■

A Shade of Difference

Macworld
LAB TEST

Reference systems in <i>italics</i> . Best results in bold .	SPEEDMARK 2.1	QUAKE III	SOUNDJAM 2.5.2
	Overall Score	Normal	MP3 Encode
Apple iBook G3/500 with 64MB, CD-ROM	93	23	3:19
Apple iBook G3/500 with 128MB, DVD-ROM	101	26	3:17
Apple iBook G3/500 with 128MB, combo drive	101	23	3:14
Apple iBook G3/466 with 64MB, DVD-ROM	100	22	3:21
Apple PowerBook G4/400 with 128MB, DVD-ROM	122	32	2:13
	Better ▶	Better ▶	◀ Better

Speedmark scores are relative to those of an iMac 350MHz (1999), which is assigned a score of 100. Quake scores are in frames per second. SoundJam scores are in minutes:seconds. We tested each system with Mac OS 9.1 installed, a default system disk cache, virtual memory enabled, and displays set to their native resolution and 24-bit color. We tested Quake III at a resolution of 640 by 480 pixels, with graphics set to Normal. We tested MP3 encoding with an audio-CD track that was 9 minutes and 25 seconds long and converted it in SoundJam using a default setting of 128 Kbps. For more information on Speedmark, visit www.macworld.com/speedmark.—Macworld Lab testing by Jason Cox and James Galbraith

After Effects 5.0

Video-Effects Powerhouse Gains 3-D, Painting, and Flash Support

BY JIM HEID

For video producers, 2001 has been an upgrade odyssey. This year has seen new versions of Adobe Premiere, Apple's Final Cut Pro and QuickTime, Media 100's CineStream, and now Adobe After Effects, the desktop-video world's top effects and motion-graphics tool. Richly layered video collages, video clips

that spin and explode, titles that glow like neon—After Effects is the best place to whip up these and other flavors of eye candy, and version 5 is the most significant update yet. Adobe has added powerful new compositing and animation features, broadened After Effects' reach to encompass the Web, and enhanced the program's interface in ways that boost productivity and encourage experimentation.

Like previous versions, After Effects 5.0 is available in two forms: a \$649 base version and a \$1,499 Production Bundle, which provides more effects and capabilities (and is

no longer encumbered by a hardware copy-protection key). I tested the Production Bundle, but everything in this review applies to both versions unless otherwise noted.

If you're running Mac OS X, you'll have to wait for the next major release of After Effects to get decent performance; version 5 isn't OS X native, and running it in Classic mode can crash your Mac.

Making a Good Thing Better

After Effects 5.0's interface is nearly identical to that of earlier versions. Most action takes place in the Com-

AFTER EFFECTS 5.0

Rating:

Pros: Superb new 3-D, parenting, and expression features; unmatched selection of effects.

Cons: Occasional delays when previewing; displays only one 3-D view at a time; one level of vector-paint undo.

Company's estimated price: \$649 (upgrade, \$199); Production Bundle, \$1,499 (upgrade, \$299)

Company: Adobe Systems, 800/833-6687, www.adobe.com

position window, where you position, resize, and manipulate imported movies and still images, and in the Timeline window, where you create *keyframes* that denote changes in an element's properties. But the program offers many interface and operational enhancements. For example, you can now change numeric values by *scrubbing* (dragging across them).

Previewing is also dramatically improved. After Effects now stores previewed frames in an internal cache, eliminating the need to rerender them unless you make a change that affects their appearance. You can speed previews by having After Effects render only a specific region of the Composition window. Unfortunately, on systems with a large amount of RAM allocated to After Effects, you may experience long delays while the program rearranges memory.

After Effects' Composition window now displays elements as you drag them, and you can now view your work in progress on an external FireWire or analog video device.

Entering Another Dimension

The star attractions of After Effects 5 are new 3-D features that let you cre-



ate dramatic effects, such as a title with rotating text that casts moving shadows as the text appears to zoom toward the viewer.

To create a 3-D composition, you click on boxes in the Timeline window to designate layers as 3-D. You can then adjust and animate numerous 3-D properties, including position, shadows, lighting, and shininess.

Working with 3-D layers is similar to working with 2-D ones, although you'll need to master some additions to the Composition window. When you select a 3-D layer, a set of *axes handles* lets you move the layer left or right, up or down, or closer or farther away.

After Effects 5 sees your scene through a virtual camera whose position and characteristics you can animate. You can create multiple cameras and switch between them; when you create a camera, you specify its optical characteristics. For greater realism, you can have the camera exhibit depth of field so that distant and close objects appear out of focus.

Mapping out 3-D camera paths on a 2-D computer screen is tricky, but After Effects' Composition window helps by providing several views. Each shows your scene from a different angle, and you can switch among them to accurately arrange layers and camera positions. Alas, the program displays only one view at a time.

After Effects' 3-D-rendering engine has some limitations. For example, it can't correctly render layers that intersect each other. Adobe is developing an enhanced rendering plug-in that will address this issue; a beta version is available on the company's Web site.

The new 3-D features may be aimed at eye-candy producers, but documentary producers will also love them: they enable After Effects to mimic a rostrum camera—a motorized camera-and-bench system often used for complex pans and zooms across still images and artwork. Although video-editing programs such as Final Cut Pro and Premiere have simple pan-and-scan features, they lack the versatility and control of a camera (even a virtual one) operating in 3-D space.

Parenting and Expressions

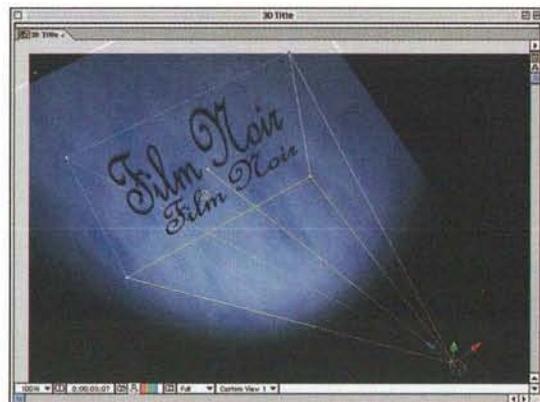
In earlier After Effects versions, making elements change or move in relation to each other required copying and pasting keyframes and duplicating motion paths. After Effects 5.0's new parenting features make short work of these tasks. You can now set up a relationship between layers simply by dragging an icon from one layer to another. You can also apply parenting to 3-D layers, lights, and cameras.

After Effects 5 lets you create relationships between properties as well. By creating snippets of code called *expressions*, you can have one property affect another, on the same layer or on a different layer. Expressions are written in JavaScript, but you don't have to be a programmer to use them. After Effects' new *pick whip* builds the expressions for you as you click and drag in the Timeline window. You can modify the expressions After Effects creates, or write your own from scratch.

More Effective

After Effects is all about effects, and version 5 introduces some slick new ones. A new Shatter filter annihilates a layer, exploding it into pieces in a variety of shapes, from glass shards to puzzle pieces. The Radio Waves effect simulates pond ripples, radio waves, Spirograph patterns, and other repeating shapes. The Vegas filter lets you outline elements with pulsing lights and theater-marquee effects. Colorama creates pulsing color effects, and Fractal makes animated fractal patterns.

The Production Bundle includes some additional effects. The superb Fractal Noise creates beautiful backgrounds and patterns, and Optics Compensation adds or removes lens distortion. The bundle also includes a vector-painting effect that lets you



Effects with Depth After Effects' custom views show a scene from different angles. The camera and its axes handles appear at the lower right.

paint directly on video frames: After Effects will play back your paint strokes either in real time or all at once. Unfortunately, Vector Paint supports only one level of undo.

Broader Output, Better Color

Although After Effects is most commonly used for TV and film effects, its ability to export compositions as Macromedia Flash SWF files gives it a place on the Web, too. You can't add interactive buttons to compositions, but you can associate URLs with markers so that a user's Web browser goes to different pages or frames as a Flash file plays back.

When you export a project in Flash format, After Effects can rasterize any graphics that don't translate to Flash's vector format.

Macworld's Buying Advice

My chief complaint about After Effects 5.0 is its documentation, which is lean on examples and barely mentions how to use many of the filters and effects; instead it refers you to Adobe's Web site, where you'll find some fine tutorials. Even so, After Effects retains its title as the Mac's top motion-graphics tool. Pinnacle Systems' Commotion (4½; *Reviews*, November 2000) offers superior paint and rotoscoping features, but its effects and compositing features fall short of After Effects', and it lacks After Effects' refined interface and tight integration with the rest of Adobe's product line. **m**

FireWire 16x CD-RW Drives

Blazingly Fast and BURN-Proof, Too

BY KRISTINA DE NIKE

Apple has finally started putting internal CD-RW drives in its new systems, but that's of little comfort to those who own earlier Macs. If you long for the unlimited capacity, quick file sharing, and handy backup a CD-RW drive offers, you're in luck: you can add a speedy external drive to your system for about \$300.

We evaluated ten of the fastest new drives on the market. They all use FireWire technology, which is 30 times faster than USB, and they're all rated at 16×10×40×, so they can burn a full CD-R in about six minutes. (See our roundup of USB CD-RW drives at www.macworld.com/2001/06/19/reviews/usbcdrw.html.) Five of the drives we tested—those from Acomdata, CD CyClone, Formac, LaCie, and MadLogix—use the same Sanyo mechanism. The ClubMac and EZQuest models rely on a TEAC mechanism, while the QPS drive contains a Plextor mechanism. The remaining drives—from Yamaha and FireWireDirect.com—use a Yamaha mechanism.

No More Coasters

For years, the most serious problem with CD-R drives has been buffer underruns: if the computer doesn't supply a steady stream of data, the drive intermittently runs out of data and writes blank space, which CD-ROM drives can't interpret. The result is a disc that's useful only as a coaster.

Eight of the drives we tested—those with Sanyo, Plextor, or TEAC mechanisms—use Sanyo's BURN-Proof technology to avoid buffer underruns. These drives stop recording when the 2MB buffer is less than 10 percent full; when the flow of data resumes and fills the buffer, the drive returns to the previous stopping point, compares the burned data

with what's in the buffer, and continues recording.

The Yamaha and FireWireDirect.com drives don't include BURN-Proof, but their 8MB buffers give them time to recover from a data glitch. Because these drives never pause, they're always burning at maximum speed. If you want to take data directly off a network or the Internet and burn it onto a CD, you're safer with a BURN-Proof drive; otherwise, any of the drives will give you speedy reads and writes with few wasted discs.

The Numbers Game

In a 16×10×40× drive, the first number refers to CD-R burn speed, the second to CD-RW write speed, and the last to CD-ROM read speed. We tested the drives with 16x-rated CD-R media and 10x-rated CD-RW discs, using a Power Mac G4/500 running Mac OS 9.1 (all the drives appeared on the desktop in OS X). The drives worked as advertised—all claim the same speeds, and in each test their times fell within a minute of each other. They also bested our baseline QPS Que Fire 12×10×32× in CD-R burning, and all but the MadLogix drive beat the older Que Fire in the Install Quake test, which indicates CD-ROM read speed.

iTunes and Disc Burner (both downloadable for free from Apple's site) work with all the drives. However, iTunes burns only audio CDs, and Disc Burner burns only Macintosh single-session CDs; to create multiple sessions or use any other format, you need an application such as Roxio's Toast (www.macworld.com/2000/02/reviews/toast4.html). All the drives include Toast 4.1.1 or 4.1.2, though FireWireDirect.com bundles



The LaCie 16x10x40x U&I (left) and the ClubMac FireWire 16x/10x/40x

the application only if you purchase it from the company's Web site for an additional \$1 when you order the drive. (The latest version, Toast 5.0, isn't available bundled with drives as of this writing.)

CD-RW drives are great backup devices. Unfortunately, Dantz's Retrospect backup software hasn't yet been updated to support these drives, though it should support the Yamaha, TEAC, and Plextor mechanisms by the time you read this; check Dantz's Web site (www.dantz.com) to see if the program supports the Sanyo mechanism.

Built Like a Brick

An ideal drive has an internal power supply rather than an external power brick; its case is sturdy, with a flat top for stackability. The drives from Acomdata, ClubMac, FireWireDirect.com, MadLogix, and Yamaha all fit this description. The CD CyClone and Formac drives' metallic cases, though eye-catching, are too curved to allow stacking. And both drives come with external power bricks, although you can power the Formac via the FireWire bus.

The LaCie drive includes a USB port in addition to the two FireWire ports. You can attach the drive either

Too Close to Call

**Macworld
LAB TEST**

Reference system in *italics*.

Best results in bold.

Shorter is better.

	TOAST 4.1.2		QUAKE III
	Burn 650MB File (CD-R)	Burn 100MB File (CD-RW)	Install Quake
Acomdata FireWire CD-Rewritable Drive	5:40	2:10	2:51
CD CyClone CDRevo	5:38	2:13	2:31
ClubMac FireWire 16x/10x/40x	5:58	2:03	2:22
EZQuest Boa CDR/W 16x10x40 FireWire External	6:00	2:03	2:22
FireWireDirect.com FireCD 16x10x40 Yamaha	5:50	2:08	2:44
Formac cdrw 16/10/40	5:39	2:10	2:31
LaCie 16x10x40x U&I	5:37	2:10	2:31
MadLogix Alien 16x10x40 External FireWire	5:37	2:16	3:17
QPS Que Fire CD-RW 16x10x40 External	5:31	2:04	2:30
Yamaha LightSpeed CD-RW Recorder CRW2100FXZ	5:50	2:16	2:53
QPS Que Fire 12x10x32x	7:13	2:04	3:01

◀ Better ▶ Better ▲ Better

We tested each drive in a Power Mac G4/500 with Mac OS 9.1, 128MB of RAM, a default system disk cache, and virtual memory enabled. Results are in minutes:seconds and do not include verification times.—Macworld Lab testing by Jason Cox

way—handy if you're using it with both an older iMac and a newer Mac.

While FireWire drives are extremely easy to set up, you should get a manual for your \$300. QPS and Yamaha provide thorough documentation, including a section on using Toast. ClubMac, Formac, and LaCie also include decent manuals. The manuals from Acomdata, CD CyClone, FireWireDirect.com, and MadLogix consist simply of a few pages of quick-start instructions.

Macworld's Buying Advice

All ten drives are easy to set up and fast, and most cost about \$300. You can't go wrong with any of them, but we preferred the ClubMac and LaCie drives. The ClubMac FireWire 16x/10x/40x has a good price, toll-free tech support, and a simple case, and it comes with five iMac-colored faceplates. The LaCie 16x10x40x U&I's additional USB port allows you to use it with a USB Mac (although USB supports only 4x speed). m

FireWire CD-RW Drives Compared

COMPANY	PRODUCT	MOUSE RATING	COMPANY'S ESTIMATED PRICE	CONTACT	MECHANISM	PROS	CONS
Acomdata	FireWire CD-Rewritable Drive	3 1/2	\$330	909/613-9488, www.acomdata.com	Sanyo	Stackable case.	Tech support is a toll call.
CD CyClone	CDRevo	3 1/2	\$339	714/247-0099, www.cdcyclone.com	Sanyo	Small case.	External power brick.
ClubMac	FireWire 16x/10x/40x	4 1/2	\$290	800/217-9153, www.clubmac.com	TEAC	iMac-colored faceplates.	No description of Toast in manual.
EZQuest	Boa CDR/W 16x10x40 FireWire External	3 1/2	\$289	714/694-0031, www.ezq.com	TEAC	Solid case.	Not stackable.
FireWireDirect.com	FireCD 16x10x40 Yamaha	3 1/2	\$299	512/302-0012, www.firewiredirect.com	Yamaha	Has 8MB buffer.	Toast not included automatically.
Formac	Formac cdrw 16/10/40	3 1/2	\$289	877/436-7622, www.formac.com	Sanyo	Powered by FireWire bus.	Not stackable.
LaCie	16x10x40x U&I	4 1/2	\$300	503/844-4500, www.lacie.com	Sanyo	Has both FireWire and USB connectors.	Not stackable.
MadLogix	Alien 16x10x40 External FireWire	3 1/2	\$270	877/462-5436, www.madlogix.com	Sanyo	Least expensive in roundup.	Slowest CD-ROM read times.
QPS	Que Fire CD-RW 16x10x40 External	3 1/2	\$279	800/559-4777, www.qps-inc.com	Plextor	Nice carrying case.	Not stackable.
Yamaha	LightSpeed CD-RW Recorder CRW2100FXZ	3 1/2	\$360	800/926-2426, www.yamaha.com	Yamaha	Has 8MB buffer.	Most expensive in roundup.

Analog-to-DV Converters

Devices Add Audio and Video Capture to FireWire Macs

BY JEFFY K. MILSTEAD

Perhaps you're intrigued by Apple's new focus on digital video, but own an analog camcorder or have a pile of home movies on VHS tape. In either case, you'll need some way to get that analog video into your Mac digitally. The best way to do that is with a FireWire analog-to-DV converter, which can send the audio

and video from your Mac right back out to your TV screen. And if you already own a DV camcorder with analog inputs, a converter can handle the link to your computer so you won't have to frantically unplug your camcorder each time you rush out to capture breaking events on videotape.

We looked at four analog-to-DV converters that offered similar features: the Dazzle Multimedia Hollywood DV-Bridge, the Formac Studio, the Power R Director's Cut, and the Sony DVMC-DA2 Media Converter. All the products performed as advertised, but the Formac Studio

stood out as the most Mac-compatible and innovative of the bunch.

Making the Connection

When you play analog audio and video, a converter box digitizes the media and converts it into the same DV format used by digital camcorders; that data is sent to your Mac via FireWire.

Hooking up a DV converter is simple: just plug it into a six-pin FireWire port on your computer and connect it to your video source, and it's ready to go. The Hollywood DV-Bridge and Formac Studio converters come with the necessary FireWire

cables. However, the Sony unit includes a FireWire cable with a four-pin connector—ideal for hooking the converter up to a Sony Vaio but not, unfortunately, to your Mac. And only the DVMC-DA2 includes an S-Video cable and an A/V cable for connecting the audio.

Once the converter is connected to the computer and the camcorder, you can begin capturing or exporting video. In tests with a 500MHz G4 Power Mac and an iMac DV, we were able to capture and play back video using each of these converters from within Apple iMovie 2.0.3 (including the Mac OS X version), Adobe Premiere 6, and Apple Final Cut Pro 2. We didn't notice any differences in image quality among the four.

In our tests, iMovie immediately recognized all the converters with no problem. For Premiere, we had to select each device specifically from a control menu before the program could communicate with the converter. The Formac Studio and the Hollywood DV-Bridge detect whether you're capturing or outputting a signal, and they have LED indicators that show the direction of transfer. Both also have buttons for switching sources, in case automatic switching doesn't kick in. With the DVMC-DA2 and the Director's Cut, you must switch sources manually.

From Geek to Sleek

In the industrial-design department, the Director's Cut looks as though it belongs in a TV studio: it's housed in a sturdy, utilitarian black metal box that only an engineer could love. At the opposite end of the aesthetic spectrum is the Formac Studio, a curved silver box that would look more at home in an ad agency (Formac also



The Formac Studio

Analog-to-DV Converters Compared

COMPANY	PRODUCT	MOUSE RATING	COMPANY'S ESTIMATED PRICE	CONTACT	PROS	CONS
Dazzle Multimedia	Hollywood DV-Bridge	3½	\$299	888/212-8045 www.dazzle.com	Remote control of Sony Handycams.	Structurally unstable; requires external power supply.
Formac	Studio	4	\$399	877/436-7622 www.formac.com	Powered by FireWire bus; extra FireWire port; sleek design; includes software.	Pricier than the others.
Power R	Director's Cut	3½	\$349	800/729-6970 www.powerr.com	Powered by FireWire bus; extra video output for monitor; dedicated headphone jack.	Requires manual switching; less aesthetically pleasing than the others.
Sony Electronics	DVMC-DA2 Media Converter	3	\$299	800/222-7669 www.sel.sony.com	Remote control of Sony Handycams.	Requires external power supply; 4-to-4 pin FireWire cable only; no PAL support; copy protection.

sells a clear model). The compact DVMC-DA2 has the simple elegance typical of Sony gear, while the lithe form and vertical orientation of the Hollywood DV-Bridge make the device so structurally unstable that even the strain from the connecting cables can pull it over.

S-Video and AV jacks are standard on all the converters, but the Director's Cut carries an extra S-Video-out port for monitoring the signal being sent to the VCR—a handy feature you'd normally find only in professional stu-

The Details

The Formac Studio offers some unique features, including a TV and radio tuner and an internal speaker. An option in the ProTV tuner software allows it to search for available TV and radio channels; you can assign names to the individual stations it finds. The ProTV software can also capture timed snapshots to a folder—handy if you're building a Web cam. Unlike Formac's other TV tuner product, the ProTV PCI card (*Reviews*, October 2000), the Formac Studio doesn't support closed-captioning or let you adjust brightness and contrast.

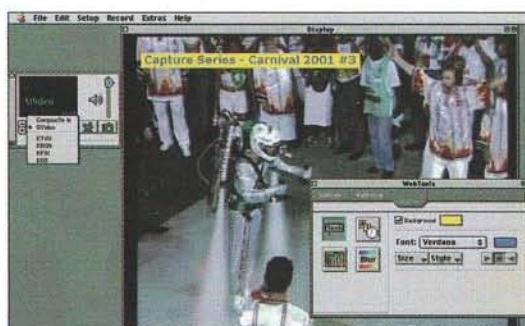
The Formac Studio also offers more playback options than the others, supporting 16:9 and 2.35:1 aspect ratios in addition to the standard 4:3. All four products support the NTSC video format, which is common in North America, and all but the DVMC-DA2 support the PAL format, found overseas. In addition, the DVMC-DA2 is the only converter in our roundup that supports Macrovision, an analog copy-protection scheme used by most DVD players and VCRs. Videotapes and DVDs that have the Macrovision signal embedded will appear normal

when viewed on most TVs; when they're recorded to tape and played back, however, the image will be distorted and unwatchable. It makes sense that Sony Pictures wants to prevent its movies from being copied, but we believe you're better off using a product that doesn't put up this kind of a roadblock.

If you own an analog Sony Handycam, the DVMC-DA2 and the Hollywood DV-Bridge let you control your camcorder's playback functions from within Premiere or iMovie, making these features almost as easy to use as a digital camcorder. In those applications, however, the DVMC-DA2 required us to switch manually between playback and editing modes.

Macworld's Buying Advice

If, in addition to converting analog audio and video, you want to add a TV and radio tuner to your Mac or would benefit from the flexibility of an added FireWire port, the Formac Studio is a great all-in-one choice. If you need a dedicated headphone jack or an extra video output, consider the Power R Director's Cut. If you're on a budget and willing to forgo extra features, choose the Dazzle Hollywood DV-Bridge. The DVMC-DA2, with its copy protection and lack of PAL support, is the least attractive option. ■



Tune In The Formac Studio lets you turn live video into something resembling Web-cam footage. Add time stamps, titles, and even blurring mosaic patterns to an image.

dio equipment. It also has a quarter-inch headphone jack with a level knob. The Formac Studio includes two additional coaxial inputs, for cable TV and antennae.

The Hollywood DV-Bridge and DVMC-DA2 use external power supplies; the Director's Cut and Formac Studio take a more convenient approach, drawing power from the FireWire bus. The Formac Studio also has a second FireWire port, for daisy-chaining other peripherals.

More Info:

www.wwug.com

Find DV-related tutorials and forums at this user-group site.

More Info:

www.adobe.com/motion/tips/main.html

Adobe's Web site offers tips and techniques for working with digital video.

Adobe Photoshop Elements

Most of Photoshop's Bang, for Minimum Bucks

BY GALEN FOTT

Adobe Photoshop has long been heralded as the unchallenged champion of image editing. So why doesn't everybody use it? Two reasons: the cost (\$609) and the learning curve (lengthy). With its recent reworking of the old Photoshop LE, Adobe takes the Eraser tool to those obstacles. Priced at only \$99, Photoshop

Elements combines an astonishing amount of Photoshop 6.0's power with helpful, nonintrusive guidance.

RGB Acres

Adobe isn't quite giving away the farm with Photoshop Elements, but it's certainly being generous with the acreage. In addition to Photoshop 6.0's basic tools, Elements contains high-end features such as the History palette (making Photoshop LE's single undo seem like a bad dream), adjustment layers, dialog-box-free text input, the Warp Text and Liquify commands, GIF animations, and all 99 effects filters. Elements also opens and saves a full range of file formats, including EPS and PDF.

Some features are slightly scaled back compared with their Photoshop counterparts, but by and large, Adobe has left out only features that graphics professionals might miss. Most con-

spicuous by their absence are CMYK Color mode, recordable actions, the Channels palette, editable vector shapes, and advanced selection tools such as masking.

Another element missing from this application's periodic table is Carbon. Elements doesn't run natively in OS X, and Adobe is mum on when a Carbonized version might appear. On the plus side, I was able to pull in a scan while running Elements in OS X's Classic mode, despite a warning on Adobe's Web site that it couldn't be done.

In addition to borrowing from Photoshop, Elements offers a few features of its own. The most interesting is the Photomerge command, which does a commendable job of combining a group of images into one large, panoramic shot. Some new instant-fix features are less impressive: the Red Eye Brush tool and Straighten And Crop

Image command yield haphazard results at best.

Element-ary School

Photoshop Elements may throw in a few one-click wonders, but such tools are contrary to Photoshop's technical nature. Happily, Elements excels at explaining the technical stuff. Rest your cursor over a tool, and the Hints palette displays a brief, illustrated explanation of that tool's use; the Recipes palette offers

ADOBE PHOTOSHOP ELEMENTS

Rating:  1/2

Pros: Exceptional value; includes many of Photoshop's most powerful tools; excellent help features.

Cons: Unimpressive instant-fix features; not Mac OS X native.

Company's estimated price: \$99

Company: Adobe Systems, 800/833-6687, www.adobe.com

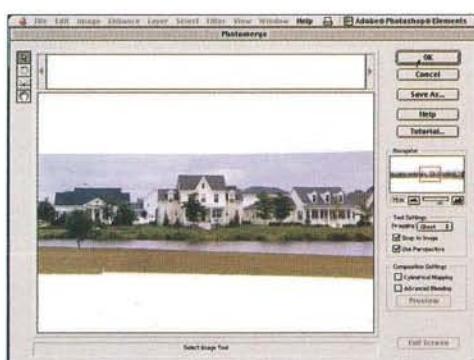
step-by-step instructions for common tasks, such as adjusting an image's tonal range and restoring damaged photos. And you can download additional recipes from Adobe's Web site.

Elements contains individual palettes for filters, effects (the pre-recorded actions that ship with Photoshop 6.0), and layer styles. These helpful palettes give you visual clues as to how a particular change to your image might look.

Once you've mastered the basics and need in-depth information, the application's built-in help and 270-page manual can fill in the details.

Macworld's Buying Advice

Photoshop Elements gives you roughly five-sixths of Photoshop's power for less than one-sixth the price. That missing one-sixth is crucial for graphics professionals, particularly those working in the print field. But if you don't make a living creating graphics, this is probably all the image editor you'll ever need; it's vastly superior to both its predecessor, Photoshop LE, and Adobe's antediluvian PhotoDeluxe for the Mac. Photoshop Elements makes it easy and affordable to learn image editing the best way: with Adobe Photoshop. ■



Mergers and Acquisitions The Photomerge command turns a group of images into a panorama.

Committed to Extending OS X Support!

Sonnet Technologies Mac[®] OS X Support Solutions

Regardless of what you may have heard, many Macintosh® computers enhanced with Sonnet processor upgrades can run OS X! If your Power Macintosh G3 or G4 computer is enhanced with a Sonnet processor upgrade, you're set—our Encore™ product line supports Mac OS X now. Do you have an "officially" unsupported PCI machine such as a Power Macintosh 7300/7500/7600, 8500/8600 or 9500/9600? With Sonnet, you're covered—Sonnet has engineered a breakthrough OS X compatibility solution for these computers when combined with our popular Crescendo™/PCI upgrades! Delivery is slated for June 2001, available for download. As for PCI adapter cards, our Tempo™ Ultra ATA66 and Tango™ FireWire®/USB cards are OS X compatible today.

Great News for Newer Technology Customers

There's no need to feel left out if you're a Newer Technology customer—Sonnet's commitment to extending Mac OS X support also includes a program for MAXpowr ZIF and MAXpowr PCI G3/G4 processor upgrades! Sonnet will release OS X compatibility solutions for MAXpowr processor cards in the near future.

If you own one of these Macs and Sonnet makes a product to go into it, then we have an OS X solution for You!

- ▶ Power Mac G3 & G4 Series
 - ▶ Power Macintosh 7300, 7500, 7600 Series
 - ▶ Power Macintosh 8500, 8600 Series
 - ▶ Power Macintosh 9500, 9600 Series
 - ▶ G3 All-in-one
 - ▶ G3 Blue & White
 - ▶ G3 Desktop
 - ▶ G3 Minitower
 - ▶ G3 Server
 - ▶ PowerTower Pro
 - ▶ PowerWave
 - ▶ UMAX J700, S900



SIMPLY FAST™

For a complete statement on Sonnet's Mac OS X compatibility solutions, go to www.sonnettech.com/news/macosx_update.html

Circle 133 on card or go to www.macworld.com/getinfo

LightWave 6.5

High-End Package Brings Impressive 3-D Effects to the Mac

BY MATT LOWRIE

Given the Mac's graphics superiority, it's surprising that 3-D production work on our platform of choice has until recently been a piecemeal process. One of the first fully integrated 3-D packages to migrate to the Mac from the Unix world was NewTek's LightWave, a powerful application for creating television and film

effects. Now at version 6.5, LightWave's wealth of professional modeling and animation tools rivals those of programs such as Electric Image Universe and Maxon's Cinema 4D.

The Sum of the Parts

LightWave is actually a collection of separate applications: Modeler, for creating objects; Layout, for animating and rendering scenes; and Hub, which updates projects when you make changes in Modeler or Layout.

Modeler is polygon- and spline-based; it offers an efficient surface-subdivision mode in which you can create smooth organic forms similar to what you'd get with NURBS modeling. The program includes a collection of tools for patch modeling, along with "viewports" that you can use as UV mapping editors for precise placement of textures.

For creating bone hierarchies, Layout lets you set hybrid forward and inverse kinematics explicitly for each

bone. The visual Graph Editor makes it easy to fine-tune smooth-keyframe interpolation using Bézier or TCB (tension, continuity, bias) curves. The unresponsive pan tool and time slider can be frustrating, however.

Some notable additions in version 6.5 are an integrated particle system, a soft-body dynamics engine, automated Atlas mapping tools, and a new Schematic view. Other welcome enhancements include a reorganized interface; a Bézier-curve tool in Modeler; and resizable viewports and front, left, and bottom views in Layout.

You'd think that documenting all these new features would be a high priority, but that doesn't appear to be the case. LightWave 6.5 ships with the printed manuals for version 6; the 6.5 addendum is available only in PDF form. Equally disappointing is the lack of an index and the fact that the manuals assume you're using the Windows version.

LIGHTWAVE 6.5

Rating:  1/2

Pros: Integrated 3-D tools; excellent rendering engine; integrated particle system and soft-body dynamics engine.

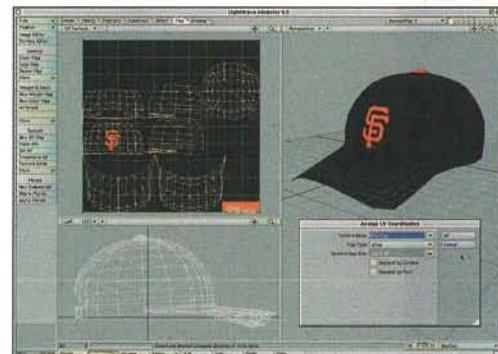
Cons: Poor documentation.

Company's estimated price: \$2,495

Company: NewTek, 800/862-7837, www.newtek.com

Motion Designer can force objects to behave like cloth that can be influenced by any other element in the scene. And you can use animation expressions and modifiers to automatically move objects based on other objects' behavior.

But no matter how many impressive features a 3-D package offers, it all comes down to rendering—and in this area, LightWave excels. The ray-tracing engine can calculate realistic reflections, refraction, and caustics; the radiosity engine supports high-dynamic-range calculations of bounced light, allowing you to illuminate a scene using only photographs saved in the HDRI format. LightWave



Hats Off to Mapping LightWave's Atlas function automatically "unwraps" models.

also supports distributed rendering, either on one multiprocessor machine or over a TCP/IP network.

Macworld's Buying Advice

If you want a complete 3-D-production package for character animation, product design, or visual effects, LightWave 6.5 is a great value—especially when you consider that many of its standard features, such as particles and dynamics, are available only as expensive plug-ins in other packages. **m**

Get MO For Less.

HIGH RELIABILITY — AS LOW AS \$219*
It's the best deal ever for Fujitsu DynaMO Magneto Optical drives. These 640MB and 1.3GB, Mac and PC compatible MO drives offer high-performance, full rewritability and full backward compatibility. And MO disk technology offers a 30+ year archival life and unparalleled durability. So step up to tomorrow's technology at today's new price. Call 800-831-8094 ext. 305 or visit www.MOstorage.com

REMOVABLE STORAGE REDEFINED



Visit
our booth
#1035
at Macworld Expo,
July 18-20, New York City.

FUJITSU

THE POSSIBILITIES ARE INFINITE

*MSRP for DynaMO 640 Internal IDE drive. ©2001 Fujitsu Computer Products of America, Inc. All rights reserved. All statements herein are based on normal operating conditions and are not intended to create any express or implied warranty. Fujitsu Computer Products of America, Inc. reserves the right to modify at any time without prior notice these statements, our products, and their performance specifications. Fujitsu and the Fujitsu logo are registered trademarks of Fujitsu Ltd. DynaMO is a registered trademark of Fujitsu Computer Products of America, Inc. All other trademarks are the property of their respective owners.

RealBasic 3.2

The Easiest Way to Program Your Mac

BY DORI SMITH

Does your mental image of BASIC involve line numbers, procedural code, and single-character variable names? If so, you don't know how far the language has come. Real Software's RealBasic 3.2 offers all the convenience of a modern object-oriented language while retaining the simplicity of the venerable BASIC syntax, making it a lot easier to create applications with. And because the program takes a visual approach to building user interfaces, it's the simplest way for nonprogrammers to start coding.

Not Your Father's BASIC

Programming on the Mac used to involve writing line after line of C or C++ code, primarily just to create standard user-interface elements. Fortunately, RealBasic's Rapid Application Development (RAD) support allows you to make a prototype of your interface quickly. To begin constructing an application, you create a blank window and drag predefined user-interface elements into it from the Tools palette. Once you've laid out the interface, it's much easier to add the code to power that interface. Though there's still plenty of code to write at this point, RAD enables you to see—and, more important, test—how well each piece works within the larger picture.

REALBASIC 3.2

Rating:

Pros: Easy user-interface creation; cross-OS capabilities.

Cons: Weak documentation.

Company's estimated price: \$100

Company: Real Software, 512/263-1233, www.realsoftware.com

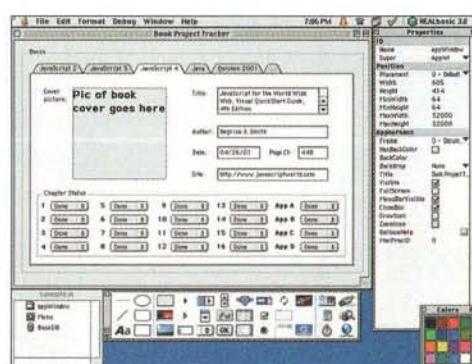
Version 3.2 is both more powerful and easier to use than version 2 (*Reviews*, October 1999), with a new Sprite engine, which gives you greater control over animation, and a handy autocompletion feature. The List box and Edit fields offer greater functionality, such as improved scroll bars and scroll positioning, and their appearance is now more accurately reflected in the Window editor.

The Three OSs

RealBasic 3.0 was advertised as being compatible with Mac OS X, but it had problems with the final version of the OS. RealBasic 3.2 remedies them; both the development environment and the applications it produces are Carbon compliant. Although it's too bad that RealBasic can't produce Carbon and Classic applications simultaneously (you have to run the compiler twice, picking a target environment each time), the Carbon applications run just fine under OS 9.

RealBasic is available in both a \$100 standard edition and a \$300 professional edition (add \$50 if you want a software CD and printed documentation); the latter lets you compile Windows applications and includes a single-user relational database engine that can also connect to any ODBC-compliant database.

At first glance, the documentation—a tutorial, a developer's guide, and a 1,200-page language reference—looks impressive. However, neither the table of contents in the developer's guide nor the index in the language guide matches the actual contents. Worse, the tutorial assumes you already know something about programming, using terms such as *properties* and *classes* without defining them. Fortunately, novice coders who need help can turn to the active online community of RealBasic users—just follow the links from Real's Web site.



Look, Ma, No Code! RealBasic's visual design tools let you lay out your user interface before you code.

Macworld's Buying Advice

If you're looking for the easiest way to start programming your Mac, RealBasic 3.2 is the answer. Its closest competition—Metrowerks' \$50 CodeWarrior Learning Edition 2, which includes C, C++, and Java—has a harsher learning curve, due to the professional development environment it shares with its predecessor, CodeWarrior Professional. RealBasic isn't without flaws, but its ease of use and drag-and-drop approach can quickly turn novice coders into programmers, and programmers into coding machines. **m**

NEC

ASPIRE.

I let you do more.

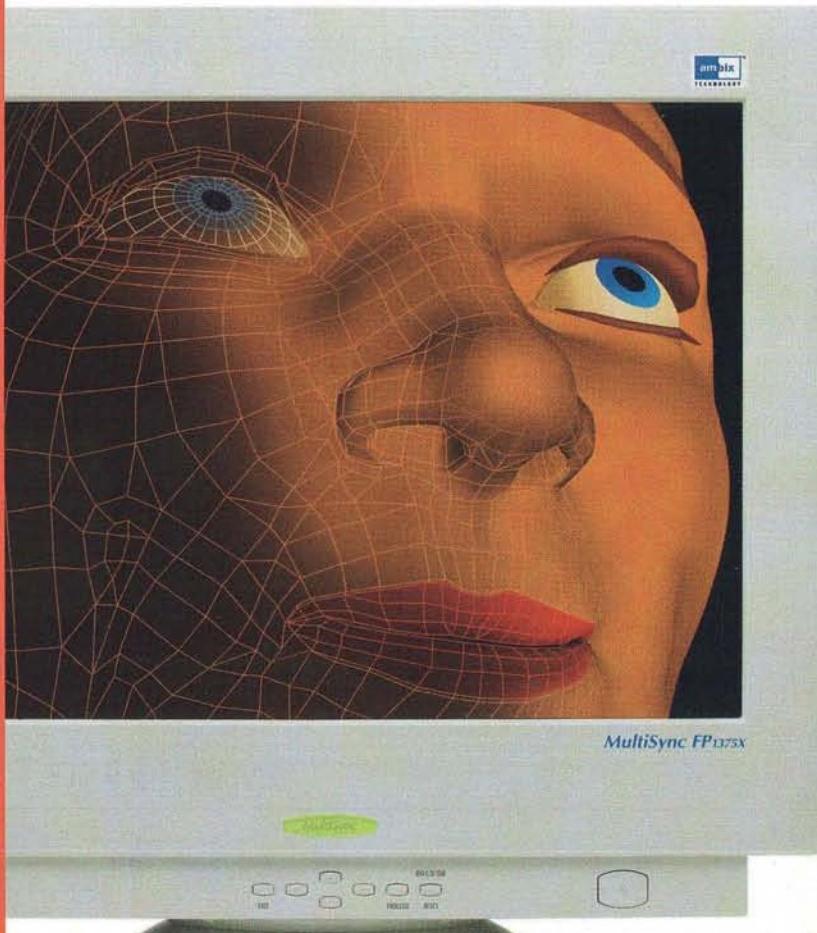
See images more clearly.

Visualize in endless new ways.

Create in vivid color, with flat-screen precision.

I'm your monitor.

I help you turn your ideas into reality.



MultiSync® FP Series	FP955	FP1355	FP1375X
Screen/Viewable Size	19"/18"	22"/20"	22"/20"
Max Resolution	1920 x 1440 @ 73 Hz	2048 x 1536 @ 75 Hz	2048 x 1536 @ 80 Hz (analog) 1600 x 1200 @ 60 Hz (digital)
Grille Pitch	0.24mm	0.24mm	0.24mm

MultiSync is a registered trademark. Ambix and FP Series are trademarks of NEC-Mitsubishi. Simulated image in monitor.
©2001 NEC-Mitsubishi Electronics Display of America, Inc. All rights reserved.

The all-new NEC MultiSync® FP Series™.

Superb resolution and unrivaled detail. Edge-to-edge clarity, with virtually no distortion. Glare-free viewing. True-to-life color. Larger viewing areas for more versatility. They're all part of the flat-aperture grille advantage.

All models feature dual system input capability. Select models feature Ambix™ the dual digital and analog technology that delivers added compatibility. With stellar performance and pricing, it's no surprise our MultiSync FPs are the monitors of choice for people who take their precision seriously.

Only from NEC-Mitsubishi, the combined force of the two leaders in visual display technology.

SEE MORE.

For more information or to buy online, go to www.necfp.com.

NEC/MITSUBISHI
NEC-MITSUBISHI ELECTRONICS DISPLAY

Voodoo Personal 2.0

Powerful Utility Manages File Revisions

FOR YEARS, software developers have relied on version-control systems to keep track of multiple editions of their source code. Now Voodoo Personal brings this power to anyone who needs to save and recover revisions to any type of file, created in any application. Whenever you create a version that you might want to retrieve later, you instruct Voodoo to put a copy of the file in

Rating: 

Pros: Stores and retrieves multiple versions of a file; easy on disk space.

Cons: Difficult to learn.

Company's estimated price: \$99

Company: Uni Software Plus,
voodoo-sales@unisoftwareplus.com,
www.unisoftwareplus.com

its archive. To conserve disk space, Voodoo stores only the differences between versions and uses those differences to re-create an entire file.

In the History window, you can see a summary of all the file revisions you've kept. Voodoo lacks a built-in file viewer, but you can open any file in the archive using the application that created it. To revert to an earlier version, you use the Fetch command to retrieve it from the archive and save it under any name you specify.

Voodoo superficially resembles Power On Software's Rewind (; *Reviews*, April 2001); however, the latter isn't designed to manage file revisions. For example, only Voodoo lets you add comments on document changes to your files and manage variants of files.

History of Voodoo Review Project		
Turn Back		
19 of 19		
Date & Time	Name	User
4/23/01 8:55:07 PM	Initial Version	Franklin Tessler...
4/23/01 8:55:10 PM	Voodoo Review	Franklin Tessler...
4/23/01 9:04:21 PM	Voodoo Review	Franklin Tessler...
4/23/01 9:07:58 PM	Voodoo Review	Franklin Tessler...
4/23/01 9:10:00 PM	Voodoo Review	Franklin Tessler...
4/23/01 9:20:08 PM	Voodoo Review	Franklin Tessler...
4/23/01 9:23:12 PM	This is the second parag...	Franklin Tessler...
4/23/01 9:23:15 PM	Voodoo Review	Franklin Tessler...
4/23/01 6:19:25 AM	Voodoo Review	Franklin Tessler...
4/23/01 6:23:33 AM	Voodoo Review	Franklin Tessler...
4/23/01 6:23:36 AM	Voodoo Review	Franklin Tessler...
4/23/01 6:29:31 PM	Voodoo Review	Franklin Tessler...
4/23/01 6:59:39 PM	The programmer's approach	Franklin Tessler...
4/23/01 7:00:53 PM	Voodoo Review	Franklin Tessler...
4/23/01 7:13:37 PM	First caption	Franklin Tessler...
4/23/01 7:13:43 PM	Caption	Franklin Tessler...

Old Versions The History window lets you see all your revisions at a glance.

Macworld's Buying Advice

Nonprogrammers may find Voodoo Personal's terminology somewhat intimidating, and the tutorial illustrates the mechanics of version control without adequately explaining the underlying concepts. Once you get the hang of it, though, you'll find Voodoo Personal an indispensable tool.—FRANKLIN N. TESSLER

DiskWarrior® has



1999 Macworld Editors' Choice Awards
Winner, Utility Software. "DiskWarrior is an excellent ax to add to your disk-repair and -maintenance arsenal. DiskWarrior's ease of use, speed, and new method of fixing disk problems make it a powerful disk-maintenance product."



WINNER

1999 MacUser Awards
Best Utility/Enabling Software.
"For providing a new, easier to use, safer, and often more successful alternative to more bloated recovery applications, the judges felt DiskWarrior deserved top billing..."



1999 Apple Design Awards
Most Innovative Product,
Runner-up Best New Product



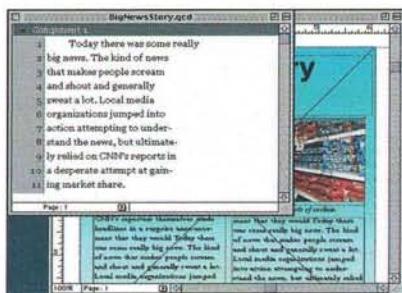
5 Out Of 5 Stars
"Every Mac on the planet can benefit from DiskWarrior!"

Repairs disk problems such as disks that won't mount, files you Now with DiskShield™ to prevent damage to your disks before it

QuarkCopyDesk SE 2.0

A Word Processor Only a QuarkXPress User Could Love

YOU'VE HEARD THE ADAGE "Use the right tool for the job." If you need to edit a large amount of text in a QuarkXPress document, the right tool may just be QuarkCopyDesk SE 2.09. This stand-alone program is a cross between QuarkXPress and a word processing program. It combines



Don't Strain Your Eyes It's much easier to edit text in QuarkCopyDesk SE (top layer) than in QuarkXPress (bottom layer).

the typographic controls of XPress with tools designed for editors, such as galley and full-screen modes that display text in an easy-to-read font and size but with line breaks intact, allowing editors to work in a program designed for editing rather than in the designer-oriented—and more expensive—XPress.

Workflow is simple: you export text from XPress and open it in CopyDesk SE, which displays the page layout. The program knows how much text an Xpress box can hold, so you can edit to fit. Unfortunately, CopyDesk SE lacks keyboard and menu shortcuts for automating the import and export of text. In addition, there's no way to export or import more than one story in a document; overset text isn't indicated in the page-layout view,

Rating:

Pros: Galley and full-screen views; can copyfit text outside of QuarkXPress.

Cons: Importing and exporting text is awkward; can't disable text formatting; no revision marks.

Company's estimated price: \$299

Company: Quark, 800/676-4575,
www.quark.com

you can't turn off style features, and there are no revision marks.

Macworld's Buying Advice

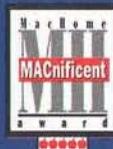
Any QuarkXPress user who deals with large amounts of text will appreciate QuarkCopyDesk SE's tools, but the cost and hassle of using a separate program limit CopyDesk SE's usefulness.—DAVID BLATNER

won more top awards any disk utility ever.



Mac Today
1998 Editors'
Choice
Awards

Outstanding Disk Rescue Product.
"DiskWarrior belongs in the arsenal
of every Mac owner!"



MacHome - Five Apples,

MACnificent Award

"DiskWarrior is a deceptively simple yet incredibly powerful disk repair utility, which is able to fix your disk problems with zero effort."



"DiskWarrior comes to the rescue..."



MacHome 8th Annual

Home Choice Awards

Best Utility. "Got lots of votes for repairing and preventing damage to hard disks so well. DiskWarrior 2.0 is a quick solution to faster, more stable hard drives."

can't trash, and folders that have disappeared.
occurs. Visit www.Alsoft.com for details.

Circle 141 on card or go to www.macworld.com/getinfo

WWW.ALSOFT.COM

ALSOFT

1-800-257-6381

© 2000 Alsoft, Inc.
Alsoft, DiskWarrior,
DiskShield are trademarks of Alsoft, Inc.

**Get everything
you're looking for:**



www.macworld.com/getinfo

**Macworld's
Reader Service**

"Get Info" with options! Now you can get information on all the products and services you see in *Macworld*. And get it faster. Simpler. Better. Easier. All you need to do is visit one Web site:

www.macworld.com/getinfo

Then select the products, the categories or advertisers for whom you want to receive information. That's it. You can have the information delivered to you by e-mail, snail mail or even telephone. Or you can click on a link that will take you to the vendor's Web site in one easy step.

PLUS! In this issue, the return of the hard card! A traditional perforated card that allows you to circle your product-info choices as you read *Macworld* on the train, on the plane or where-ever you are. Then drop the card in the mail and it's on the way!

Macworld

iView MediaPro 1.0

Indispensable Tool for Organizing Digital Assets

NEED A WAY to organize your digital photos or your Mac's multitude of graphics, sounds, fonts, and movies? Look no further than iView Multimedia's powerful yet affordable asset-management program, iView MediaPro 1.0.4.

The program's simple interface lets you create catalogs by dragging files, folders, and complete volumes into the application's main window. You can view files as thumbnails or full-size images, as well as play movies and audio files. iView MediaPro offers an abundance of ways to find and sort, including by assignable keyword, and it supports a wide variety of media files. You can export your catalogs of digital assets as HTML documents, contact sheets, and QuickTime slide shows. You can even adjust image brightness, color, and sharpness from within the program.

While we highly recommend iView MediaPro overall, unlike programs such as Canto's Cumulus and Extensis's Portfolio (which are admittedly much more expensive), it doesn't let you share catalogs across a network. In addition, the program is buggy under OS X.

Macworld's Buying Advice

iView MediaPro is a terrific utility. For OS 9 users on a budget, there's just no better way to organize digital-media files.—CHRISTOPHER BREEN

Rating: 1/2

Pros: Catalogs a wide variety of media files; strong export features; built-in image calibration.

Cons: Doesn't perform well under OS X.

Company's estimated price: \$45

Company: iView Multimedia, 800/903-4152, www.iview-multimedia.com

FotoShow

Digital Slide-Show Device Has Limited Appeal

DO YOU WANT TO PUT ON a digital slide show without forcing friends or coworkers to crowd around your computer? The FotoShow, from Iomega, lets you display images as a slide show or on-screen photo album on a TV or VCR. You connect the device to your TV via the included composite (RCA) cable, insert a CompactFlash or SmartMedia card or a PC-formatted Zip disk containing your images, and then use the FotoShow's remote control and on-screen menus to organize your photos.

Unfortunately, the tutorial offers little practical information; I had to consult the somewhat confusing manual to figure out many steps in the process. Because the on-screen menu system is ambiguous, I almost erased an entire project by mistake. And although the FotoShow includes some basic image-editing tools, they lean more toward fun effects than serious editing.

Macworld's Buying Advice

The FotoShow lets you create decent slide shows, but its appeal will be limited by the fact that many digital cameras can display images as slide shows on a TV, and by the availability of inexpensive slide-show software such as Interactive Solutions' \$80 MovieWorks (*Reviews*, June 2001). With its high price and limited usefulness, the FotoShow is difficult to recommend.—ADRIENNE ROBILLARD

Rating: 1/2

Pros: Doubles as a USB Zip drive; decent results.

Cons: Expensive; confusing manual and tutorial; Zip disks must be PC formatted.

Company's estimated price: \$250

Company: Iomega, 888/516-8467, www.iomega.com

Macworld.com**For these reviews:**

www.macworld.com/2001/08/reviews/online.html

LINK

Portable MP3 players

Archos Jukebox 6000
 Nomad Jukebox

USB CD-RW drives

EZQuest Boa CDR/W 4x4x32x USB Ext. PM
 CD Cyclone USB CD Revo 4x4x32x
 Iomega CD-RW Predator USB Drive
 LaCie USB CD-RW 4x4x24x

Disk-repair utility

DiskWarrior

Foreign-language instruction

Talk Now
 World Talk

Color laser printer

Phaser 790DP

Upgrade for PowerBook 1400

Crescendo/PB G3 333/512K

Diagnostic and maintenance utility

TechTool Pro 3.0

German instruction

Advanced German DVD

Videoconferencing software

ClearPhone
 CUseeMe
 iSpQ VideoChat 4.01

Dye-sub photo printer

Olympus P-400

Wireless speaker transmitters

Cam Pro
 Kima KS-110

Game

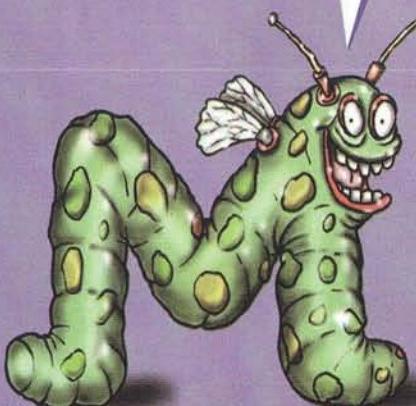
Rogue Spear

Reviews You Can Trust

RATINGS

OUTSTANDING: **VERY GOOD:** **GOOD:** **FLAWED:** **UNACCEPTABLE:** **WhatTheFont?**

Why, that's Tannarin by Brian Bonislawsky.
I found it at MyFonts.com. With over 13,000 fonts,
why look elsewhere?
Find, try, buy fonts. MyFonts.com.



Attributed to © 2001 MyFonts.com

www.myfonts.com

Need a font? MyFonts.com offers the world's largest collection of fonts in one place.

Visit MyFonts.com before October 8, 2001 and get Prima Sans – a \$99 value – for free! Search for Prima Sans, add it to the cart, and enter EMBESTIE in the Gift Certificate box during checkout!

Fonts used are: Prima Sans for body copy, Misery for balloon caption, Ryan for url. No fonts were harmed during the making of this ad.



MyFonts.COM™

**Make Your Own...
DVD's!****World's first Firewire CD/DVD burner****all4DVD**
www.all4dvd.com**MEDIASTORE**
www.mediastore.com
1-800-555-5551**CD CYCLONE**

www.cdcyclone.com
ph: 714-247-0099
fax: 714-247-0080



Includes Toast 5.0 @ DVD and CD recording software for burning movies or interactive video to DVD and audio or data to CD.

Distribute DVD movies

Bring your desktop to your desktop with the DVD-R. After you create your movie, use the DVD Revo DVD-RW as a perfect way to distribute them to virtually any DVD player.

Store 4.7GB of data or multimedia

The size of a CD-Rom and the storage capacity of a CD-R disc, DVD-RW is a new maximum for data storage.

Like 6 drives in 1

DVD-R, DVD-RW, DVD-Rom, CD-R, CD-RW, and CD-Rom all in one. To start with the DVD Revo write DVD's at 2X which is equivalent of writing a CD at 16X (1X DVD write = 8X CD write). It takes just over 30 minutes to write a full 4.7GB DVD.

Circle 127 on card or go to www.macworld.com/getinfo

"Tropico takes the addictive building gameplay style of Railroad Tycoon II and adds an ample drop of banana republic intrigue to create a truly absorbing game."

—Apple.com

"A refreshing twist on the old building theme."

—Computer Gaming World

You rule.

TROPICO™

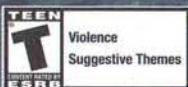


You are the newly-installed dictator of an obscure Caribbean Island.

You must create a life of prosperity and happiness for your people.

Success will bring the praise of your people, along with a fat Swiss bank account. Failure?

Well, there's always martial law.



Tropico, the Tropico logo, PopTop and the PopTop logo are trademarks of PopTop Software, Inc. ©2001 Gathering of Developers, Inc. All Rights Reserved. All other trademarks and registered trademarks are the property of their respective owners. Manufactured and marketed by Infogrames, Inc., New York, New York.

Circle 30 on card or go to www.macworld.com/getinfo



MacSoft®

The Game Room

I've dreamed about only a few games, and *Myst III: Exile* is one of them. As I feverishly worked my way through it, a few of the puzzles gnawed on my subconscious like a hungry Squee munching on barnacle-moss flowers—more on Squees later. Suffice it to say that soon after I plunged into this game, solving its puzzles turned into a compulsion that gripped my mind both day and night.

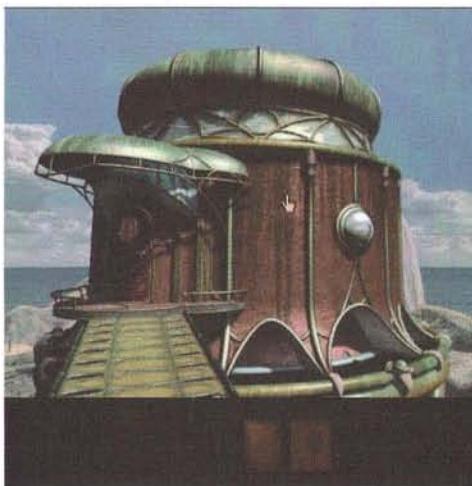
Mystified

Unless you've been living in a cave since the early nineties, you've probably heard of *Myst*. Just in case you haven't, I'll say that it's a phantasmagorical adventure game set in a rich graphical environment. There are no foes to kill and no dragons to slay—just you, your imagination, and your problem-solving skills pitted against some of the most brain-twisting puzzles imaginable. And it has no specific instructions—as you explore the world of *Myst*, a story filled with intriguing characters unfolds.

Myst and its sequel, *Riven*, both produced by Cyan, are formidable phenomena in the game world. The two together have sold millions of copies, so development of new *Myst* games was inevitable. They're tough acts to follow, but *Myst III: Exile* is a worthy successor. Cyan, having moved on to other projects, handed over the production of *Myst* to Presto Studios, and Ubi Soft is publishing the game.

Myst's Rich Tapestry

Like *Myst* and *Riven*, *Myst III: Exile* shows exquisite production values—the environment is rendered with beautiful, lavishly detailed images. But *Exile* is even more realistic. Traveling through *Myst* and *Riven* was like watching a slide show: rather than moving freely through the landscape, you had to move one click at a time. This is true of *Exile* as well, but you can also look all around, above, and below—in a seamless, 360-degree panorama—with every click. *Exile* also supports OpenGL-based graph-



ics, which add nice atmosphere. Ocean waves undulate and roll gently, for example, and as you manipulate objects that reflect or project light, you'll see the white-out of lens flare. The game features an engaging soundtrack that's thematically linked to the events in the game, so it never plays the same way twice. And if you turn away from a sound source, such as a character speaking, the sound grows fainter.

Mystaken Identity

Myst III: Exile picks up the story about ten years after the events in *Riven*. You follow the trail of Saavedro, an old colleague of Atrus, the man who created *Myst*, *Riven*, and many of the other Ages (or worlds) in which the games are set.

Atrus's evil sons devastated Saavedro's own Age, Narayan, and after losing his world, his people, and even his family, he goes mad—all he wants is revenge. You take the role of Atrus's dear friend, here to help Atrus recover the Age of Releeshahn. Saavedro hoped to trap Atrus in his web, but he got you instead. You're always one step behind Saavedro, trying to solve his dastardly puzzles and gather clues about what to do next.

Taking a cue from criticisms leveled at *Riven*, Presto carefully unfolds the story line in bits and pieces throughout the entire game, rather than dumping most of it at the beginning and end. One key to understanding what's going on is Saavedro's manuscript, which he drops page by page throughout the various Ages. You also receive a manu-
continues

TIPS

Mystified? Try your hand with these tips and tricks.

- *Myst III: Exile* doesn't waste any opportunity—if you can interact with an object, chances are it's a key to one of the puzzles.
- Read Atrus's and Saavedro's journals carefully. They will give you insight into each character. Look carefully for the

pages Saavedro has dropped, too—they're easy to miss.

- Note that the control mechanisms used by the telescopes in the J'Nanin observatory are the same as the controls you'll find inside some tusks.
- As you solve puzzles in Amateria, note the hexagonal designs and colors on top of the control panel covers.

They're important in gaining access to the tower and activating what's within.

- The puzzles on Edanna are among the trickiest, because they're based primarily on natural forces that interact in subtle ways. Pay careful attention to the effects of light and water on Edanna's flora, and note that some of it can reflect and channel light.

script by Atrus, which will give you some background on what this author of Ages is doing and why it's so important for you to recover the Linking Book to the Age of Releeshahn, which Saavedro has taken. This process of discovery makes it rewarding to play the game all the way through, since you're always sure to gain enlightenment just around the next bend.

Play Myst for Me

Spread across four CD-ROMs, *Myst III: Exile* is immense, and the puzzles you must solve are every bit as challenging as the ones in *Riven* and *Myst*—often more so. Most of them involve logic, a bit of computation, or visual perception. Often your challenge will be making sense of what's happening and then learning how to affect it.

To gain access to one key location, for example, you must build a bridge between yourself and the tower that contains a magical linking book. (Clicking on a linking book in any of the *Myst* games takes you to a different Age. Some books, however, turn out to be dead ends.) Constructing the bridge involves figuring out the relationship between Squees—furry, adorable, chirping creatures—the barnacle-moss flowers they like to eat, and the Hearken Fern, a huge plant with some unusual auditory characteristics. This whole process involves five distinct observations and interactions—and this is one of the easiest puzzles you'll find. Though this type of challenge is what makes the game so compelling, you may want to pick up *Myst III: Exile, Prima's Official Strategy Guide*, by Rick Barba (Prima Games, 2001), or at least visit some of the *Myst* fan sites on the Web for hints.

Each of the Ages has a unique style with particular challenges. One deals with energy phenomena such as electricity and steam; getting a generator online is a key part of solving this Age and moving to the next. Another Age, in contrast, deals with kinetic forces. In this one—which is my personal favorite—the puzzles all involve weights and balances, and one big honkin' roller-coaster ride. Yet

another is a nature Age, where the puzzles take a more organic tone—you must make plants and animals interact in certain ways. And still another requires a good understanding of Atrus's cryptic shorthand.

Call Me an Optimyst

This challenging game may put off folks who don't have the time or patience to solve very intricate puzzles. And with four CDs, a fair amount of disc swapping is involved (a DVD version was in the works at the time I wrote this review, but I didn't have the opportunity to test it). Chances are, if you started out this column with a sarcastic "Yet

another *Myst* game, whoopee," you should just move along—probably nothing here will interest you. For the rest of us, however, it's an immensely enjoyable and thoroughly engrossing experience.

Macworld's Buying Advice

Hats off to Presto and Ubi Soft for bringing out what could possibly be the best *Myst* game yet. *Myst III: Exile* brings the franchise to a new level, with sophisticated new effects, 3-D panoramic environments, and mind-bending

puzzles. Though it's hard—maybe a bit too hard sometimes—ultimately the game is very rewarding. If you liked the first two *Myst* games, consider this a must-have. ■

PETER COHEN, international man of mystery, is actually the very same person as Peter Cohen, MacCentral.com's senior editor.

Got a comment? Visit www.macworld.com/columns/gameroom/.

MYST III: EXILE

Rating:  1/2

Company's estimated price: \$45

Pros: Beautiful graphics; engrossing story.

Cons: Puzzles may be too challenging for many players without outside assistance.

Company: Ubi Soft, www.ubisoft.com



©2001 Nikon Inc. Digital ICE™ is a trademark of Applied Science Fiction.™ www.nikonusa.com ALTAMIRA
PRINTERS INC.

**If a picture is worth a thousand words, how many
are you willing to give a great scan?**

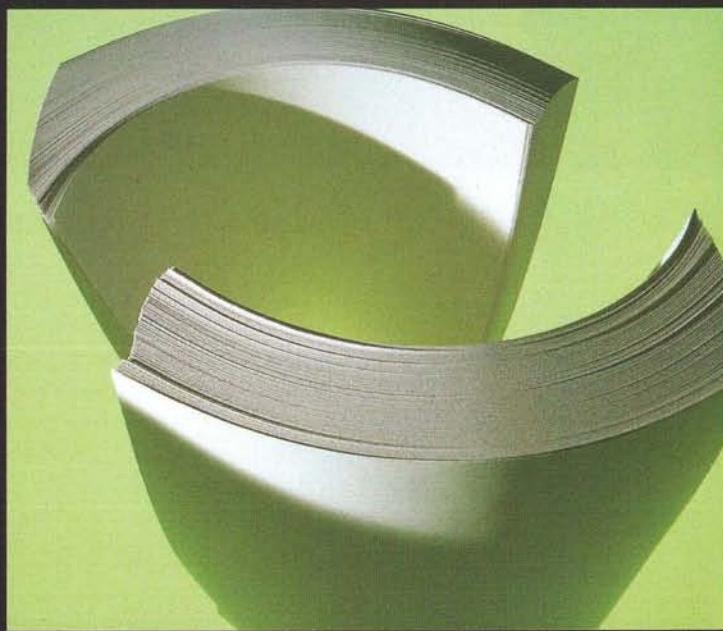
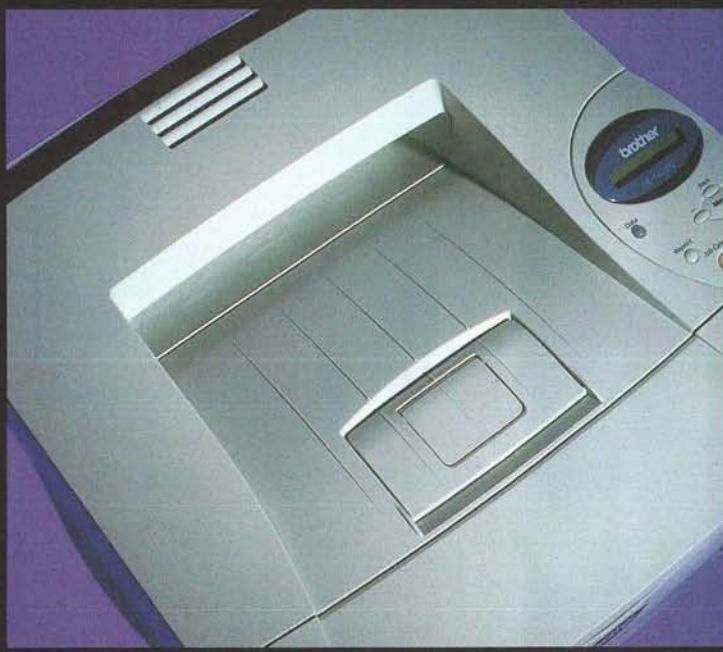
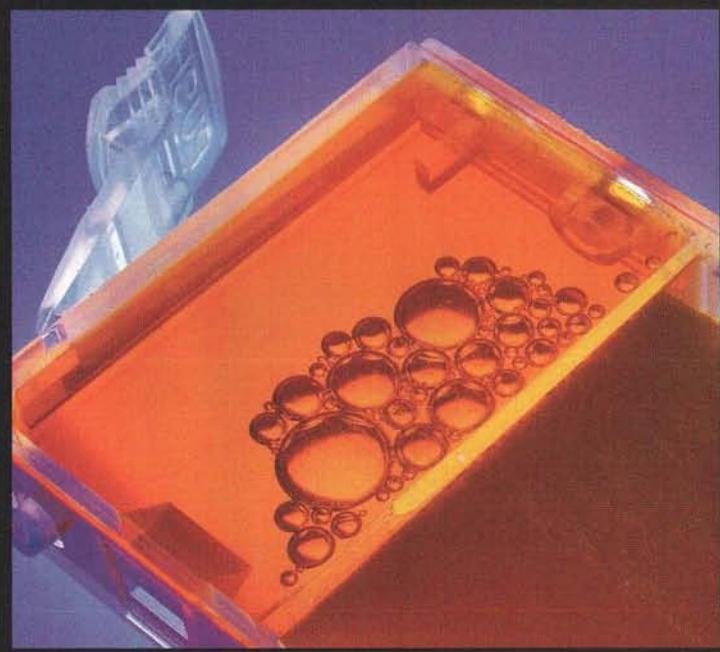
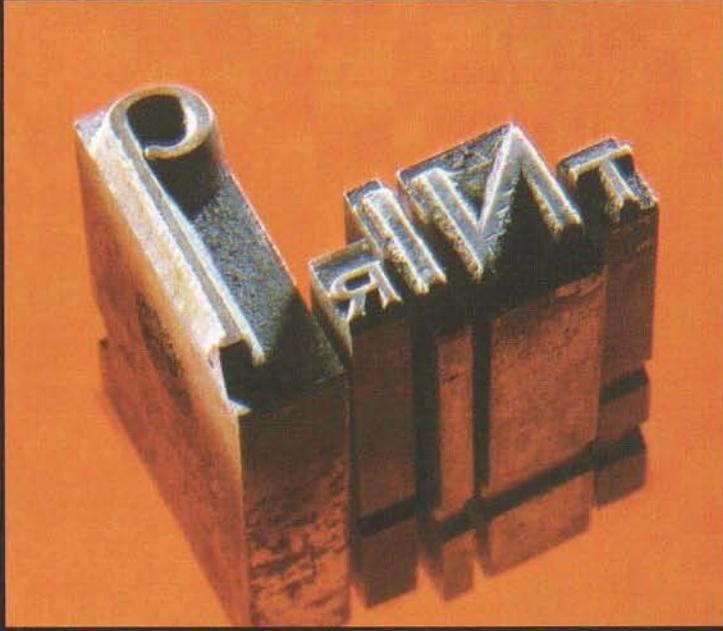


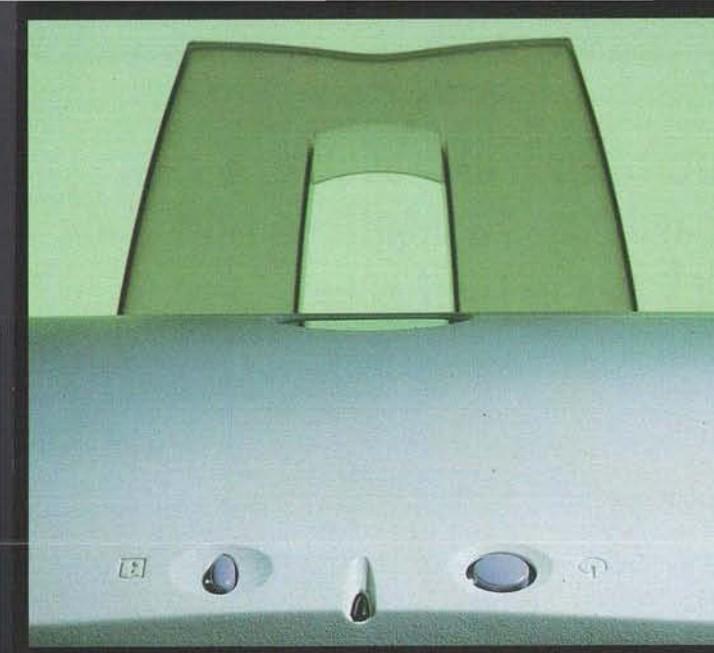
One look at an image scanned by the new Super Coolscan® 8000 ED and you realize words alone don't do it justice. Very simply, you get the highest dynamic range and resolution of any desktop film scanner available. Part of the family of Nikon scanners, it's capable of scanning a variety of film formats, including 35mm, 120/220, 16mm, and microscope. And because you get large-volume scans in a fraction of the time of other film scanners, you save considerable time and manpower. The Super Coolscan 8000 ED. Its images alone just may leave you speechless.

Nikon

www.nikonusa.com

New Super Coolscan® 8000 ED = Multiple Film Formats + Nikkor Optics + 4000 dpi + Digital ICE3™ + 4.2 Optical Density





We Test 20 Printers—Both Ink-Jet and Laser—to Find the Right One for You

MACWORLD'S ULTIMATE BUYERS' GUIDE

PRINTERS

With the benefit of hindsight, we can laugh at pundits who predicted that computers would bring about the paperless office. If anything, new technology has made printers more important than ever, both at home and at the office. We use our personal printers to print out tax forms, maps, digital photographs, homework, recipes, e-commerce receipts, and much more. Home-office users, who depend on their equipment for their livelihoods, especially need reliable printers that can meet their needs without breaking the bank.

But as printer prices continue to plummet and the variety of models and options expands, finding the perfect printer becomes more challenging. Before you plunk down your hard-earned cash, you need to make sure you've chosen a printer that meets your specific requirements. There are a lot of factors to consider: Will the text be readable? Will your images look grainy? How fast will your pages print? How long will your printer last?

To help you through the labyrinth of choices, *Macworld* has put together this guide to purchasing your next printer. We examined three types of personal printer, each with different strengths and weaknesses: monochrome laser printers that cost less than \$800, four-color ink-jet printers that cost less than \$200, and photo-quality ink-jet printers that cost less than \$500. We compiled buying advice and tips for each group, and then Macworld Lab put 20 of these printers to the test, to determine the best in each category. (For results, see "Seeing in Black and White," "Big Color for Small Budgets," and "Picture-Perfect Prints.")

BY BRUCE FRASER ■ PHOTOS BY KEVIN TWOMEY

"Most laser printers are capable of producing several thousand pages a month—a workload that would bring most ink-jets to their knees."

CHOOSING A PRINTER TECHNOLOGY

Instead of wandering the aisles of your local computer store and trying to decipher the subtle differences among dozens of printer models, save yourself valuable time by first deciding what type of printer you need. Despite the overwhelming number of models, all printers are based on one of just a few basic technologies. The most common are laser printing and ink-jet printing, which has two varieties: four-color and photo-quality. Each has distinct advantages and disadvantages. If you understand how these technologies work, you can determine which best suits your needs. (For more help picking an appropriate printer technology, see "Four Questions to Ask Yourself before You Buy.")

Laser Printers

Monochrome laser printers have long been the workhorses of the printing world. Although limited to black-and-white output, they print significantly faster and sharper than ink-jet models, making them an excellent choice if you need to print long documents or have a heavy printing load.

Behind the Scenes When you send a file to your laser printer, a small laser inside the machine writes the image of the page onto a photosensitive drum, one row of dots at a time. Where the laser flashes, the photosensitive drum picks up a positive charge. As the charged drum rotates, it passes through negatively charged toner—basically, powdered black plastic—which then adheres to the charged spots on the drum. The toner is then transferred to a sheet of blank paper as the page passes beneath the rotat-

ing drum. Finally, the paper passes through a set of heated rollers that heats the plastic and fuses the toner to the paper. The result is sharp black marks resistant to smudging, water, and all but the most determined efforts to remove them.

Pros and Cons The laser printer's greatest advantage is speed. Its impressive printing rates are due to two features. First, its marking engine—the part of the printer responsible for putting marks on the paper—takes only a few seconds to complete its task. Second, almost all laser printers available for the Mac contain a RIP (Raster Image Processor). This is a dedicated on-board computer that converts incoming data to a *page bitmap*—an image of the page at the printer's resolution. Printers that lack RIPs, such as ink-jets, must rely on the host computer to calculate the page bitmap, tying up your computer each time you print a page. Printing takes longer, and your Mac is slowed during the job.

RIPs also give laser printers an edge in producing sharp graphics, because most RIPs are PostScript-compatible. PostScript lets a printer interpret and redraw shapes, characters, and curves with much greater precision when printing from PostScript-based applications such as Adobe Illustrator and QuarkXPress. Without a PostScript RIP to interpret the data, these applications are reduced to sending the monitor image to the printer, producing jagged, low-resolution bitmaps instead of smooth PostScript lines and curves.

But laser printers are less impressive when it comes to photo images. No one would mistake a laser-printed photograph for a darkroom print; the result is usually comparable to a good newspaper reproduction. And although color laser printers do exist, they're still rather expensive for personal use, starting at around \$3,000.

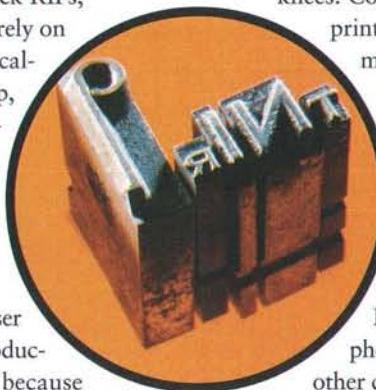
Monochrome laser printers generally cost more up front than ink-jets, but their consumables (toner, for example) cost less. A page of text that costs 5 cents in paper and toner on a laser printer will probably cost double that—or more—in ink-jet consumables. Plus, most laser printers are capable of producing several thousand pages a month—a workload that would bring most ink-jets to their

knees. Considering that a laser printer will typically last much longer than an ink-jet, it's an excellent option for printing-intensive environments such as a home office.

Ink-Jet Printers

If you want to print photographs, charts, or other color media, you're

probably in the market for an ink-jet printer. Ink-jets, the most popular type of printer, have evolved from the noisy, slow beasts of yesteryear to sleek boxes that can print in color and in black-and-white. And as the technology has improved, prices have dropped; many ink-jets now sell for less than \$100. Although they're significantly slower and more expensive to run than monochrome laser printers, ink-jets offer flexibility that's hard to beat.



Behind the Scenes Ink-jet printers use tiny drops of cyan, magenta, yellow, and black inks (together referred to as CMYK colors) to produce color prints. Placed next to one another in different patterns, these inks simulate a full range of colors.

Most ink-jet printers use one of two technologies to expel the ink droplets from the print head. Thermal (or Bubble Jet) technology uses heat, while Piezo technology employs small electronic crystals to create vibrations. Both methods are capable of producing excellent results. The most important difference is that inks developed for Bubble Jet printers can't be used in Piezo printers, and vice versa.

There are two types of color ink-jet printer on the market: four-color ink-jets, which are typically designed to be all-purpose printers, and six-color ink-jets—or photo printers—which are designed for high-quality photographic output. The quality of color output you require and the amount you're willing to spend will determine which is right for you.

Pros and Cons: Four-Color Ink-Jets

These ink-jets are at home printing monochrome text or color graphics. They print to a variety of paper sizes and types, and their initial purchase price is easy on the wallet.

But this flexibility comes with trade-offs. Ink-jets can't approach the speed of laser printers. Since they rely

on the host computer to do all the processing, some time may elapse between when you click on a print button and when the printer starts printing. Simple text documents print fairly quickly—ten pages in two to five minutes on the models we tested. But print speeds for high-resolution photographic images dragged significantly: it can take some ink-jet printers 16 minutes to produce a single high-resolution image.

An ink-jet printer's low initial cost is one of its main attractions, but it's important to factor in the ongoing expense of operating it. The per-page cost of ink-jet printing is generally higher than that of laser printing, often more than twice as high.

continues

Four Questions to Ask Yourself before You Buy

Since no type of printer is right for everyone—or every job—it's important to match your needs with a printer's abilities. Consider what you require, what you'd like, and what's irrelevant to you. Start by answering the following questions:

What Do I Plan to Print?

In choosing a printer technology, first think about the types of documents you'll print. If you need PostScript output, for page layouts from QuarkXPress, for example, you must buy a printer that contains a PostScript interpreter. Most laser printers come with these; ink-jets do not, and adding a PostScript RIP to an ink-jet printer is a significant expense.

If you *absolutely* need to print color documents, get an ink-jet printer. If color is desirable but not essential, you should weigh the advantages of a laser printer's speed and longevity against an ink-jet printer's low initial cost and flexibility.

Avoid buying a photo printer unless you primarily print photographs. These printers are highly specialized, and if you use them regularly for other

kinds of documents, you won't be getting your money's worth.

Will I Connect My Printer to a Network?

If you need to share a printer among several machines—in a home office, for example—laser printers are a good choice, because they're generally easier to network than ink-jets. Many laser printers have built-in Ethernet capabilities, and those that don't usually offer an Ethernet option.

Ink-jet and laser printers without an Ethernet option can use Apple's USB Printer Sharing software, which is included in Mac OS 9.1. (OS 9.0 users can download it from Apple's Web site.) USB Printer Sharing is more complicated to set up than Ethernet, and to print, the host computer must be turned on. Plus, printing to an ink-jet over such a network can significantly slow down the host computer.

Do I Want to Print on Both Sides of the Paper?

Ink-jet printers rarely offer automated duplex printing. But you can produce double-sided output manually with

just about any model—provided you use paper designed for the purpose. It can be a hassle—you have to print all the odd-numbered pages, flip the printed pages, reload them, and then print the even-numbered pages.

You may be tempted to try the same thing with a laser printer. Don't. Unless the laser printer is designed for duplex printing (it will say so in the product guide), you can damage it by getting melted toner on the fuser rollers. However, laser printers that offer duplex printing as a feature generally do so quickly and automatically, making your life a lot easier.

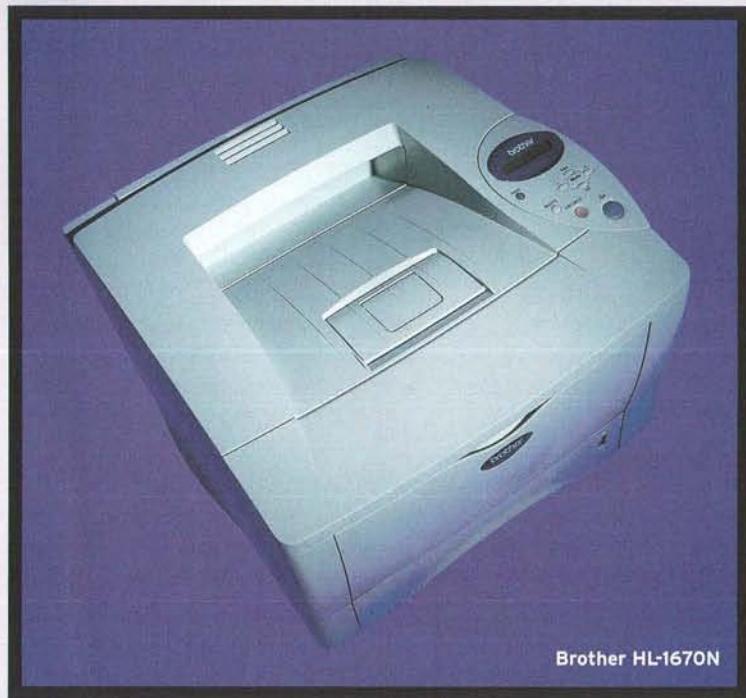
How Soon Can I Afford to Replace My Printer?

It's worth bearing in mind that PostScript laser printers are much less likely than ink-jet printers to become obsolete. There are plenty of ten-year-old laser printers happily cranking out pages. The same can't be said of ink-jets, which are still evolving dramatically. Any ink-jet printer you can purchase today will probably start looking a bit long in the tooth in three years or so.

SEEING IN BLACK AND WHITE

COLOR IS GREAT—but it's not right for everything. When it comes to reading text, for example, the eye prefers the simplicity of black ink on white paper. While color ink-jet printers are affordable and can print both black and color ink, their text output is never perfectly crisp. If you need sharp text that doesn't strain the eyes, and you don't have a lot of time to wait for documents to meander through a printer, nothing beats the quality and speed of a monochrome laser printer.

Macworld Lab tested six monochrome laser printers priced below \$800 and designed with home offices and small work groups in mind: the Brother HL-1270N and HL-1670N, the Hewlett-Packard LaserJet 1200se, the



Brother HL-1670N

Lexmark Optra E312 and Optra M412n, and the Samsung ML-6060. After testing each printer's speed and output quality, we judged the Brother HL-1670N to be the best overall value.

Getting Connected

If you're sharing a monochrome laser printer among more than one computer, you'll need to connect it to a network. The HL-1270N, HL-1670N, and Optra M412n all include 10/100BaseT Ethernet ports. Brother takes the HL-1670N's networking features to another level by including a built-in Web server that allows remote administration of networked printers via a Web browser. To connect the Optra E312, the ML-6060, or the LaserJet 1200se to a network via Ethernet, you must first

install an upgrade card, an option that will cost from \$179 (for the ML-6060) to \$255 (for the Optra E312)—more than half the price of the printer.

Of course, printers without Ethernet capabilities can still be networked using Apple's USB Printer Sharing software. However, setting them up that way can be more complicated. (See "Four Questions to Ask Yourself before You Buy.")

Speed and Power

Printer speeds advertised by a manufacturer do not include the time it takes to process and start printing the first page. A printer may take up to three minutes to process an image before a sheet of paper is pulled from the tray. The complexity of a document, the amount of memory installed in the printer, the power of the printer's internal processor, and the resolution settings all affect how quickly it will print. In general, the more RAM installed in a laser printer, the larger the file it can print. Likewise, the stronger the processor, the faster the printer starts printing. For example, the Optra M412n, with its 137MHz RISC processor, printed an Adobe Photoshop document in less than half the time it took its sibling, the 67MHz-processor E312.

Macworld Lab's time tests begin when the print button is clicked on and end when the last page drops into the paper tray. On each of the printers we reviewed, we printed a ten-page Microsoft Word 2000 document at a resolution of 600 dpi. The Optra M412n finished first, in just 48 seconds. The Optra E312 came in last, taking 1 minute and 17 seconds.

Although none of these printers had problems printing our Microsoft Word documents at their highest resolution setting, graphic-intensive documents considerably slowed down some models. In our Photoshop speed test, the Optra M412n completed the page in a stunning 56 seconds. But three of the printers—the HL-1270N, the Optra E312, and the ML-6060—weren't able to print our Photoshop document at all until we purchased and installed additional memory. We found a \$49 16MB upgrade for the HL-1270N printer on Crucial Technology's Web site (www.crucial.com). Lexmark sent a 32MB upgrade for its E312 model, at a cost of \$289. However, through Crucial Technology we found a comparable module for \$81—which also worked in the ML-6060. All of the memory upgrades came with easy-to-follow installation instructions.

Monochromes Measure Up

Macworld
LAB TEST

Best results in bold.	MICROSOFT WORD 2000	ADOBE PHOTOSHOP		PRINT QUALITY			
		6.0.1		Text	Photographic Image	Gradients	Fine Lines
		Text Document	High Resolution				
Brother HL-1270N		1:07	5:50	5:26	***	***	**
Brother HL-1670N		0:54	4:56	4:34	***	**	**
Hewlett-Packard LaserJet 1200se		0:58	4:16	3:23	***	**	**
Lexmark Optra E312		1:17	1:59	1:57	**	**	**
Lexmark Optra M412n		0:48	0:56	0:52	***	*	**
Samsung ML-6060		1:03	3:40	2:50	**	*	***

◀ Better □ Better ▶ Better

Speed-test results are in minutes:seconds. We printed a ten-page Word document, a 22MB Photoshop image (both at each printer's highest resolution and at 600 dpi), and a 748K PDF file using Adobe Acrobat 4. We measured times from the moment the print button was clicked on to the moment the last page fully emerged from the printer. We set Photoshop's memory partition to 75MB. Our test system was a Power Macintosh G4/500 with 128MB of RAM, Mac OS 9.1 installed, and virtual memory enabled. Macworld Lab conducted subjective tests in which a jury of experts rated each printer's output quality as excellent, acceptable, or poor.—Macworld Lab testing by James Galbraith

Image Quality

When we tested text sharpness, the HL-1270N, HL-1670N, LaserJet 1200se, and Optra M412n all produced crisp, easy-to-read pages. Text from the Optra E312 was sharp but slightly heavier than the other samples. The ML-6060's text was slightly less sharp but still acceptable. To evaluate each printer's image quality, we printed a high-resolution Photoshop file and a PDF document with graphical elements including fine curved lines, horizontal and vertical gradients, and photographic images. The HL-1270N produced the best overall image quality, with excellent photo images, plus good fine lines and gradients. The HL-1670N also performed well, scoring a bit lower for photo quality, but still producing acceptable gradients and fine lines.

The photo images produced by the Optra M412n were grainy, with visible horizontal lines. The Optra E312 did slightly better, with fewer horizontal lines and cleaner images. The ML-6060 produced the best gradients of any of the printers, but there were obvious breaks in the fine lines, and its Photoshop document was very light. (This printer offered no means of controlling the toner's density, unlike Lexmark's printers, which have settings in the drivers.)

The LaserJet 1200se didn't print the Photoshop test document at all initially. Instead, it spit out twenty pages, each with only a single line of characters across the top. After changing the default Binary setting to ASCII, the printer performed well across the board in the Photoshop tests, but a Mac printer should print Photoshop documents without requiring a change to default settings. (All HP printers using USB have this problem; at press time, HP said it was working on a bug fix.)

Powering PostScript

All of these printers except the ML-6060 ship with some type of emulated support for PostScript so they can interpret lines and text from PostScript-based applications such as Adobe Illustrator and QuarkXPress.

The LaserJet 1200se, HL-270N, and Optra E312 offer PostScript 2 emulation. The Optra M412n and HL-1670N include PostScript 3 emulation, which supports more levels of gray, for smoother images, and includes more fonts than PostScript 2.

Without a \$199 PostScript 3 upgrade (which includes an 8MB RAM upgrade), the ML-6060 must use the included PCL drivers, resulting in blurry, blotchy images when printing Photoshop, XPress, and PDF documents. With the upgrade installed, the ML-6060 was able to print much sharper images at 1,200 dpi.

Resolution Revolution

The Lexmark and Brother printers produce a maximum 600-by-600-dpi output, but both companies employ a resolution-enhancement technology that purports to pump up image quality to that of a 1,200-dpi printer. Indeed, in our tests the Brother printers produced clear, high-quality graphics using the enhancement technology. However, we had a hard time distinguishing between the Lexmark printers' regular and enhanced output. The companies also claim that their "enhanced" printers can print faster than printers with a real dpi count of 1,200, but we recorded only a slight advantage in our tests.—JAMES GALBRAITH

EDITORS' CHOICE

**** Brother HL-1670N This laser printer delivers the best overall value. Though slower than the same-price Lexmark Optra M412n, the HL-1670 produces better image quality and features built-in duplexing and Web-based administration tools.

Company: Brother (800/276-7746, www.brother.com)

Company's estimated price: \$749

Photo printers are fine for occasional text jobs, but if you regularly need both text and photo output, you're better off buying two printers.

When it comes to image quality, all-purpose ink-jet printers are a mixed bag. They can produce black-text documents, but many can't match the sharpness of a laser printer. And since ink-jet printers rarely have a built-in PostScript RIP, they print documents from PostScript-based applications as monitor-resolution bitmaps. Software and hardware RIPs are available for some ink-jet printers, but they generally cost several times more than the printer itself.

If you're looking to produce photographic output, today's all-purpose ink-jets print decent images from scanners or digital cameras. Their main limitations are poor highlight detail and obvious dot patterns. While some printers can produce magazine-quality photographs, others print high-contrast, oversaturated images that, although recognizable, are hardly pleasing.

Pros and Cons: Photo Printers

Four-color ink-jets' shortcomings have inspired a new generation of printers that can truly claim to produce photo-realistic images. Photo printers typically feature finer dot patterns than their general-purpose siblings, yielding the continuous gradations of tone and color found in photographs. Of course they're also more expensive; the models reviewed in this guide range in price from \$199 to \$499 (even-costlier larger-format photo printers are also available).

To achieve better highlight detail, most photo printers use two extra inks—light cyan and light magenta—with the regular CMYK colors. The light cyan and magenta dots are invisible to the naked eye, adding to the illusion of continuous tone.

When photo ink-jets first appeared, consumers' main concern was image

quality. A testament to the growing maturity of the technology, their major concern today is not how good a print will look but how long it will last. If printed on suitable paper and handled correctly, images made with today's long-lasting inks can have a lifetime similar to that of a conventional photographic print.

For photographic output on specialty paper, you can expect to spend upward of 50 cents to produce a single 8-by-10-inch image (which still compares very favorably with the cost of traditional darkroom prints). In a pinch, photo printers *can* produce other types of output, such as text documents. But since the inks they use are substantially costlier than those made for general-purpose ink-jets, and since photo printers are designed to lay down more ink, that's a very expensive way to print pages of text. Photo printers are fine for the occasional non-photographic job, but if you regularly print both text documents and photographic images, you'll be better off buying two printers. The extra cost up front will quickly be recovered in ink savings.

As with general-purpose ink-jets, photo printers do not contain a built-in RIP. But then, you don't need a RIP for photographic work. It's a consideration only if you work with layout or illustration programs, and again you'd probably be better off getting a second printer for that purpose.

Making the Choice

When you choose a printer, consider the type, quantity, and quality of doc-

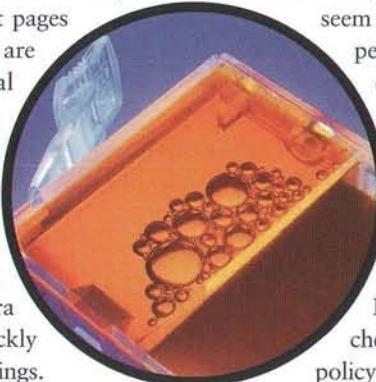
uments you need to produce. You may have to make compromises—say, if you need color from an ink-jet *and* the high volume of a laser printer. And there are other considerations: laser printing is a mature technology that's unlikely to undergo sweeping changes, so you can reasonably expect a laser printer to provide good service for a decade. Ink-jet printers, though more flexible, are still evolving, and the ink-jet you buy today is likely to seem antiquated in two or three years.

FINDING THE PERFECT PRINTER

Even after you've settled on a type of printer, choosing a specific printer in that category can be a headache. You must sort through dozens of vendors and an ever changing list of models.

The fact is, two printers that seem to be identical may perform quite differently. The true test of any printer is the quality of the print. If it's at all possible, look at sample output before you buy.

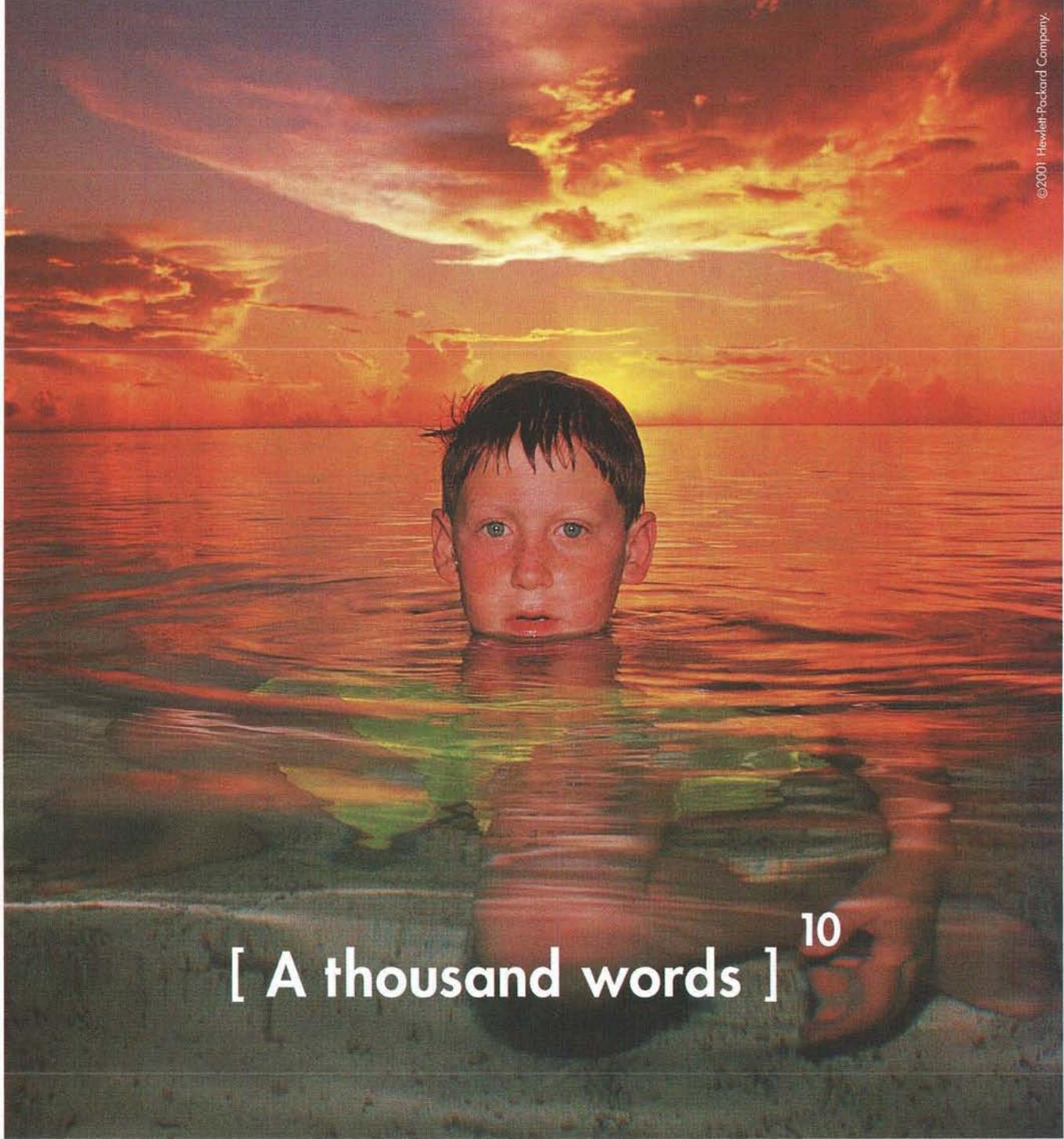
If you can't do that, check the store's return policy to make sure you won't be stuck with a dud. (For examples of common image problems, see "Looking at the Fine Print.")



Choosing Your Laser Printer

If you've decided to go with a laser printer, consider the following factors.

Print Quality Don't judge print quality solely by text output unless text is all you care about. Most laser printers produce very similar-looking *continues*



[A thousand words] ¹⁰



Take pictures. See them instantly. What you do next is up to you. No film. No developing. With an hp Photosmart digital camera and Photosmart printer, you can print photos directly from your camera to your printer. Or you can import them to your PC, change them, and send them to everyone you know, everywhere in the world. Digital images from hp. www.hp.com/go/digitalimaging



Looking at the Fine Print

When you're choosing an ink-jet printer, the manufacturer's specifications—such as resolution, speed, and ink-droplet size—tell you only so much. To be certain that your new printer will be satisfactory, you have to print a document and see what comes out. But exactly what constitutes a *bad* print? To help you identify potential problems, we gathered both good and bad samples from our own testing. Here are three important areas to consider:



Bad: Xerox DocuPrint M760



Good: Epson Stylus Color 777i

Continuous Tone One of the most important factors in a good print is the absence of obvious dots. Widely spaced or large drops of ink can give photographs an impressionistic feel and deprive the image of important detail. Examine shadow and highlight areas; they should appear smooth and natural.

1. As fo
Custom

Bad: Canon S600

1. As fo
Custom

Good: Lexmark Z32

Text Sharpness If you anticipate printing letters, homework, or any other text-heavy documents on your ink-jet printer, print a sample on nonglossy ink-jet-quality paper before you purchase one. Because ink tends to bleed when applied to paper, text often appears blurred. Pay particular attention to curved letters such as *S* and *e*, and make sure that lines are not broken or fuzzy to the point of being unreadable.



Bad: Lexmark Z32



Good: Epson Stylus Color 777i

Color Fidelity Judging a print's color accuracy is probably the most difficult test of a good printer. Stores seldom offer a color-corrected proof with which to compare your test print. Nevertheless, you should always scrutinize your test output for potential color problems. Make sure skin tones look natural, not washed out or cartoonish.

type (see "Monochromes Measure Up"). But be sure your printer can handle type correctly and doesn't cut words off at the margins.

What distinguishes laser printers is their ability to print fine lines and shades of gray. A print's gradations of gray should be smooth without noticeable bands, and photographs should reproduce at least as well as they do in your morning newspaper. Also check thin lines to see if they break or jump.

Speed Keep in mind that the print speeds listed by the manufacturer—measured in pages per minute (ppm)—usually bear little relation to real-world conditions. The advertised speed is the speed at which the printer can output multiple copies of the same page once the image has been processed by the RIP. Unless you're printing dozens of copies of the same page, you're unlikely to achieve that speed.

In the real world, a laser printer's speed depends heavily on the RIP. In general, the printer spends much more time converting the data to a page bitmap than it does actually putting the toner on the paper, especially for complex PostScript files. Unfortunately, it's difficult to compare processor speeds unless you stand by each printer with a stopwatch. So if speed is important to you, be sure to check recent reviews for more-realistic rates.

Resolution The advertised resolution—measured in dots per inch (dpi)—can also be misleading. Resolution refers to the number of addressable dots—the number of places where the printer can choose to print a dot. But you seldom get the maximum available resolution, because toner can scatter, and it spreads a little when it's fused to paper. So the actual resolution—the degree to which the printer can resolve fine detail—is always lower than the stated resolution, sometimes much lower.

To counteract this problem, some laser printers offer multiple resolu-

continues



A-5 March 15, 2001

You need Crucial RAM.

Select your system make and model at Crucial.com, and we'll find memory guaranteed to be compatible with your system or your money back. It's that easy! Best of all, you'll get the same top-quality memory the world's leading computer makers install in their systems. Visit Crucial.com and get great memory upgrades at low, factory-direct prices.

\$32³⁹

128MB PC100 SDRAM

for today's most popular systems

Price reflects an automatic 10% discount for ordering online. Prices were taken on 5/25/01 from Crucial's Web site; however, prices can (and do) change daily. Prices may vary according to specific system requirements.

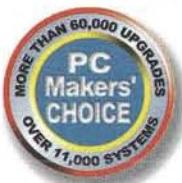
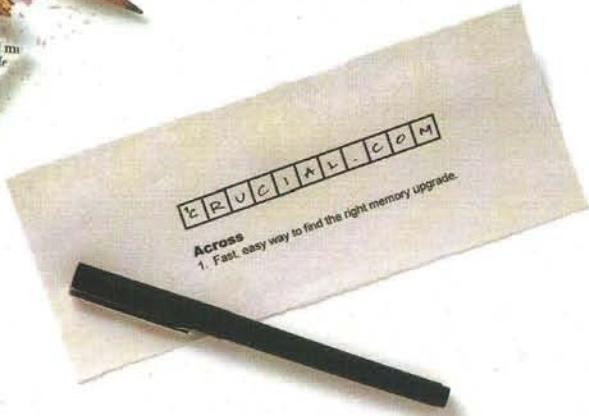
©2001 Micron Semiconductor Products, Inc. All rights reserved. Crucial Technology and the Crucial logo are trademarks of Micron Technology, Inc., and Micron is a registered trademark of Micron Technology, Inc. All other brands and names used herein are the property of their respective owners. Crucial Technology is a division of Micron Semiconductor Products, Inc. Phone 208-363-5500. Fax 208-363-5501. E-mail crucial_sales@micron.com. Crucial Technology is not responsible for omissions or errors in typography or photography.

Order online:

www.crucial.com

or call toll-free 1-888-363-3082

**Upgrading
your memory
doesn't
have to be
complicated.**



crucial
TECHNOLOGY
A Division of Micron®
The Memory Experts™

BIG COLOR FOR SMALL BUDGETS

MOST CREATIVE SOULS thirst for color but don't need the photo-realistic output of a high-end (and high-cost) photo printer. Fortunately, there's an alternative: consumer-level color ink-jet printers. Also known as business ink-jets, these printers can cost as little as \$89. Although these models, which use four ink colors, can produce photographic images, the gradients they print aren't as smooth as those of specialized photo ink-jets, which often use six (see "Picture-Perfect Prints"). But if you want the flexibility of printing text documents, colored charts, and the occasional photograph with one printer, then a four-color ink-jet may have your name on it.



Hewlett-Packard DeskJet 935c

We rounded up nine ink-jet printers that cost less than \$200: Canon's S450 and S600; Epson's Stylus Color 777i and Stylus Color 880i; Hewlett-Packard's DeskJet 842c and DeskJet 935c; Lexmark's Z32 and Z42; and Xerox's DocuPrint M760. Macworld Lab printed text documents and photographic images on each, measuring speeds and comparing printed results side-by-side. In the end, the DeskJet 935c offered the best compromise between speed and image quality.

Setting Up Shop

The printers from Canon, Epson, and HP were all very easy to set up, thanks to large, Mac-specific, step-by-step guides. Although Lexmark doesn't provide such a guide, setup for its Z32 was very straightforward. Unfortunately, the Z42 is much less Mac-friendly; the URL listed for downloading Mac drivers was broken when we tried it. Only by performing a search on Lex-

mark's Web site could we find the 2.7MB download. Xerox was even less accommodating for its DocuPrint M760. The packaging, Quick Reference, and Getting Started documents suggest only Windows compatibility, and the setup diagram doesn't offer Mac-specific instructions. A single sentence buried in the diagram's introduction lists a URL for Mac drivers.

Inks and Paper

All these printers can accommodate legal- and letter-size paper, as well as smaller formats such as envelopes. With the models from Canon, Epson, and Lexmark, you load paper into a slot at the top of the printer, and finished prints fall into a tray at the bottom. The printers from HP and Xerox have a much sturdier paper-transport mechanism: they draw paper from an enclosed cassette at the bottom of the printer and deliver your completed prints to a tray directly above the cassette. This design protects paper from outside agents such as dust and curious felines. But if you are short on desk space, you might prefer the top-loading models, which allow you to remove the bracket that supports blank paper and then fold up the receptacle tray.

Although ink-jet printers are very inexpensive, money spent on ink cartridges can quickly add up. The DeskJet 935c is the most economical of this group, with an estimated per-print cost of roughly 6 cents for color output, not including paper (see "The Big Picture"). In contrast, the Z42 has an estimated per-print cost of 14 cents. When printing black only, the S450, S600, and DeskJet 935c are the least expensive, about 3 cents per print, while the Stylus Color 777i and Z32 cost about 7 cents per print.

The Canon and Xerox printers all use a more practical approach to ink cartridges than traditional models: the ink tanks are separate from the print heads, and each color has a separate tank. So if you print a lot of black text and a single color (say, magenta), you don't need to replace the whole set of inks when just one runs out. The Lexmark inks produced an unpleasant odor during printing, though the odor disappeared after the ink dried.

The Fine Print

To judge image quality, we printed high-resolution photos at the printer's highest-quality settings on the paper recommended by each vendor. The printers produced some impressive prints, but each displayed at least one defi-

Colorful Competition

Macworld
LAB TEST

Best results in bold.	MICROSOFT WORD 2000	ADOBE PHOTOSHOP 6.0.1		HIGH-RESOLUTION PHOTO		LOW-RES. PHOTO	GRAY SCALE	TEXT
		Text Document	High Resolution	Low Resolution	Color Fidelity	Continuous Tone		
Canon S450	1:50	16:36	2:25	•	•	•	•	•
Canon S600	1:53	8:30	1:04	••	••	••	••	••
Epson Stylus Color 777i	4:09	14:20	0:32	•••	•••	•••	••	••
Epson Stylus Color 880i	1:47	14:50	0:33	•	•••	•••	•	•
Hewlett-Packard DeskJet 842c	5:08	14:50	1:21	••	••	•••	••	••
Hewlett-Packard DeskJet 935c	3:38	11:10	1:02	•••	••	•••	••	••
Lexmark Z32	4:45	9:34	1:46	•	•	••	•	•••
Lexmark Z42	2:31	12:20	1:29	•	•	••	••	•••
Xerox DocuPrint M760	2:50	5:00	1:19	•	•	••	•	•

◀ Better

◀ Better

◀ Better

Speed-test results are in minutes:seconds. We printed a ten-page Word document, both a 22MB high-resolution and a 100K low-resolution Photoshop image, and a 748K PDF file using Adobe Acrobat 4. We measured times from the moment the print button was clicked on to the moment the last page fully emerged from the printer. We set Photoshop's memory partition to 75MB. Our test system was a Power Macintosh G4/500 with 128MB of RAM, Mac OS 9.1 installed, and virtual memory enabled. Macworld Lab conducted subjective tests in which a jury of experts rated each printer's output quality as excellent, acceptable, or poor.—Macworld Lab testing by Jeff K. Milstead

cency. The Stylus Color 777i and Stylus Color 880i both produced fine, smooth prints with good continuous tone. Prints from the DocuPrint M760, S450, Z42, and Z32 were much coarser, with obvious dots. (The other printers fell somewhere between.) In general, the printers with higher resolutions produced better continuous tone. The one exception was the DeskJet 842c, which despite a relatively low resolution of 600 by 1,200 dpi produced smoother output than the Z42, which supports 2,400-by-1,200-dpi resolution.

When we compared the printers' color output with our original test image, the DeskJet 935c was the most accurate, with the Stylus Color 777i following close behind. Prints from the Stylus Color 880i and the S450 were oversaturated and contained an excess of yellow, resulting in unrealistic skin tones. Output from the Z32, Z42, and DocuPrint M760 appeared pale and washed out.

We also looked at each printer's ability to produce a gray-scale image without perceptible color. When printing gray-scale, ink-jets use a bit of color to help round out the gradients between subtle shades of gray. Most of the printers were able to reproduce fairly neutral grays with only a subtle color cast. The exceptions were the DocuPrint M760, the Stylus Color 880i, and the Z32, whose grays were noticeably tinted red, green, and blue, respectively.

The Text Factor

If you use your printer for tasks other than color printing—letters or schoolwork, for example—legibility is important. The Lexmark printers produced the sharpest text on plain paper, with only minor bleeding along the grain. The DeskJet 842c and DeskJet 935c were almost as sharp as the Lexmark printers, while the other printers showed fuzziness typical of ink-jets: bleeding around the letters and subtle, arbitrary variations in stroke

thickness. The most striking flaw was with the S450, which cut off text along the right margin.

The Race Is On

When printing text, the Canon printers and the Stylus Color 880i were the fastest of the group, cranking out a ten-page Microsoft Word document in less than two minutes. In contrast, the DeskJet 842c was downright sluggish, taking a little more than five minutes. When printing high-resolution Adobe Photoshop images at highest-quality settings, the DocuPrint M760 took a significant lead, printing a 22MB file in five minutes. The second fastest was the S600, which took eight and a half minutes to print the same image. The slowest printer in this test—the S450—took more than 16 minutes. Of course, if image quality isn't a priority—if you're printing from the Web or for proofing, for example—you can cut printing time significantly by outputting your graphics at a lower resolution. Almost all of the printers were able to produce a low-resolution image in less than a minute and a half. (The Epson printers accomplished the task in just over 30 seconds.) Even the slowest printer, the S450, took less than two and a half minutes.—DAVID WEISS

EDITORS' CHOICE

Hewlett-Packard DeskJet 935c The overall winner—and the most well-rounded ink-jet printer in the group—it produced eye-pleasing, color-accurate graphics at reasonable speeds.

Company: Hewlett-Packard (800/752-0900, www.hp.com)

Company's estimated price: \$199

THE BIG PICTURE

20 Monochrome Laser and Ink-Jet Printers Compared

COMPANY	PRODUCT	MOUSE RATING	ESTIMATED PRICE (AS TESTED)	CONTACT	MAXIMUM RESOLUTION (IN DPI)	CONNECTION	MEMORY (AS TESTED, IN MB)	MAC OS X READY?
MONOCHROME LASER PRINTERS								
Brother	HL-1270N	★★★	\$548 ^b	800/276-7746 www.brother.com	600 × 600	Ethernet, USB	20MB	yes
	HL-1670N ★	★★★★½	\$749	800/276-7746 www.brother.com	600 × 600	Ethernet, USB	16MB	yes
Hewlett-Packard	LaserJet 1200se	★★★★½	\$399	800/752-0900 www.hp.com	1,200 × 1,200	USB	8MB	yes
Lexmark	Optra E312	★★★★½	\$688 ^c	888/539-6275 www.lexmark.com	600 × 600	USB	36MB	yes
	Optra M412n	★★★★½	\$749	888/539-6275 www.lexmark.com	600 × 600	Ethernet, USB	8MB	yes
Samsung	ML-6060	★★½	\$568 ^d	201/229-4000 www.samsung.com	1,200 × 600	USB	12MB	no
FOUR-COLOR INK-JET PRINTERS								
Canon	S450	★★½	\$149	800/652-2666 www.usa.canon.com	1,440 × 720	USB	N/A	yes
	S600	★★★★½	\$199	800/652-2666 www.usa.canon.com	2,400 × 1,200	USB	N/A	yes
Epson	Stylus Color 777i	★★★★½	\$79	800/873-7766 www.epson.com	2,880 × 720	USB	N/A	yes
	Stylus Color 880i	★★★	\$129	800/873-7766 www.epson.com	2,880 × 720	USB	N/A	yes
Hewlett-Packard	DeskJet 842c	★★★	\$119	800/752-0900 www.hp.com	600 × 1,200	USB	N/A	yes
	DeskJet 935c ★	★★★★	\$199	800/752-0900 www.hp.com	2,400 × 1,200	USB	N/A	yes
Lexmark	Z32	★★★	\$99	888/539-6275 www.lexmark.com	1,200 × 1,200	USB	N/A	yes
	Z42	★★★	\$149	888/539-6275 www.lexmark.com	2,400 × 1,200	USB	N/A	yes
Xerox	DocuPrint M760	★★½	\$149	800/349-3769 www.xerox.com	1,200 × 1,200	USB	N/A	no
PHOTO-QUALITY INK-JET PRINTERS								
Canon	S800	★★★★½	\$299	800/652-2666 www.usa.canon.com	2,400 × 1,200	USB, parallel	N/A	yes
Epson	Stylus Photo 780 ★	★★★★½	\$149	800/873-7766 www.epson.com	2,800 × 720	USB, parallel	N/A	yes
	Stylus Photo 1280	★★★★	\$499	800/873-7766 www.epson.com	2,800 × 720	USB, parallel	N/A	no
Hewlett-Packard	Photosmart 1218	★★★★	\$499	800/752-0900 www.hp.com	2,400 × 1,280	USB, parallel, SmartMedia, CompactFlash, IrDA	N/A	no
Kodak	Personal Picture Maker 200	★★½	\$199	800/235-6325 www.kodak.com	1,200 × 1,200	USB, SmartMedia, CompactFlash, Zip drives via USB	N/A	no

* = Editors' Choice. N/A = not applicable. ^a Results for laser printers are based on 5 percent ink coverage. Results for ink-jet printers and photo printers are based on 5 percent coverage for black ink and 15 percent coverage for color ink. Cost of paper is not included. ^b Price reflects \$499 base price plus 16MB upgrade required to print large files. ^c Price reflects \$399 base



Brother
HL-1270N



Brother
HL-1670N



Canon S450



Canon S600



Canon S800



Epson Stylus
Color 777i



Epson Stylus
Color 880i



Epson Stylus
Photo 780



Epson Stylus
Photo 1280



Hewlett-
Packard
DeskJet
842c

PAPER CAPACITY (IN PAGES)	MAXIMUM PRINT AREA (IN INCHES)	ESTIMATED INK COST PER PAGE (IN CENTS) *	PROS	CONS
250	8.5 x 14.0	2	Very good image quality; Ethernet standard.	Requires RAM upgrade to print larger files and is still slow at printing them; underwhelming font set.
250	8.5 x 14.0	1	Very good image quality; Ethernet, automatic duplexing, Web-based administration tools standard; LCD menu screen.	Slow at printing complex files; underwhelming font set; expensive.
250	8.5 x 35.0	3	Good image quality; inexpensive.	Slow at printing complex files; must change settings to ASCII to print Photoshop documents.
150	8.5 x 14.0	2	Fast; good overall image quality.	Requires RAM upgrade to print larger files; expensive as tested.
250	8.5 x 14.0	2	Excellent text quality; fastest in all tests; LCD menu screen; Ethernet standard.	Expensive; grainy photo images.
500	8.5 x 14.0	2	Very good gradient prints.	PostScript not standard; expensive; very light prints; no density controls.
100	8.0 x 13.7	9 (color); 3 (black)	Separate ink tanks for each color.	Unimpressive image quality overall; cuts off text on right margin.
100	8.0 x 13.7	9 (color); 3 (black)	Fast; separate ink tanks for each color.	Merely average image quality for its price.
100	8.3 x 10.8	8 (color); 7 (black)	Inexpensive; very good image quality overall.	Slow; must replace all three ink colors at once; expensive black ink.
100	8.3 x 10.8	8 (color); 5 (black)	Good detail.	Poor color matching; must replace all three ink colors at once.
100	8.5 x 11.0	7 (color); 6 (black)	Inexpensive.	Slow; must replace all three ink colors at once.
100	8.5 x 10.5	6 (color); 3 (black)	Very good image quality overall; inexpensive ink.	Must replace all three ink colors at once
100	8.3 x 13.4	13 (color); 7 (black)	Inexpensive; produces near-laser-sharp text; closes up for easy storage.	Unimpressive photo quality; must replace all three ink colors at once; expensive ink.
100	8.3 x 13.4	14 (color); 5 (black)	Fast; produces near-laser-sharp text; closes up for easy storage.	Unimpressive photo quality; must replace all three ink colors at once; doesn't ship with Mac drivers; expensive ink.
150	8.4 x 10.9	11 (color); 6 (black)	Fast; separate ink tanks for each color.	Unimpressive image quality overall; doesn't ship with Mac drivers; expensive ink.
100	8.5 x 11.0	13 (color); 2 (black) ^E	Fast printing of high-resolution photos; excellent photo-quality prints; comes with separate CompactFlash reader.	Slow at printing Word documents; text gets cut off on right margin.
100	8.5 x 44.0	5 (color); 5 (black) ^E	Excellent photo-quality prints.	Slow at printing high-resolution photos.
100	13.0 x 44.0	9 (color); 5 (black) ^E	Huge maximum print area.	Slow at printing high-resolution photos; poor gray scale; expensive.
100	8.5 x 11.0	6 (color); 3 (black) ^E	Fast at printing text documents; excellent text sharpness and gray scale; built-in SmartMedia and CompactFlash ports.	Expensive; dither produces obvious dots; ColorSync profile produces slight color cast.
100	8.5 x 11.0	9 (color); 5 (black) ^E	Built-in color picture-preview screen; can get pictures directly from Zip drives; built-in SmartMedia and CompactFlash ports.	Not-so-crisp low-resolution photo prints; manual calibration of cartridges; poor gray scale.

price plus Lexmark's 32MB upgrade, required to print large files. *Price reflects \$369 base price plus Samsung's PostScript SIMM upgrade, required to print large files. ^ECost per page for black ink is based on a 1,500-character document. For color inks, cost is based on an ISO SCID #5 photo image.



Hewlett-Packard
DeskJet
935c



Hewlett-Packard
LaserJet
1200se



Hewlett-Packard
Photosmart
1218



Kodak
Personal
Picture
Maker 200



Lexmark
Optra E312



Lexmark
Optra M412n



Lexmark Z32



Lexmark Z42



Samsung
ML-6060



Xerox
DocuPrint
M760

PICTURE-PERFECT PRINTS

INK-JET PRINTERS HAVE evolved dramatically over the past few years, but the most remarkable developments by far have been in the area of photo-quality inkjets—printers designed for reproducing photographic images. Only five years ago, purchasing a photo printer typically meant shelling out \$35,000 for an Iris machine. Today, you can pay less than \$500 for a photo printer that produces output which looks and feels very much like a traditional darkroom print.

Macworld Lab put five photo printers to the test: the Canon S800, the Epson Stylus Photo 780 and Stylus

Epson Stylus Photo 780



Photo 1280, the Hewlett-Packard Photosmart 1218, and the Kodak Personal Picture Maker 200. We compared features, measured speeds, and evaluated output for sharpness, color, and continuous tone. When we were done, it was clear that the Stylus Photo 780, although slow, produced the best photographic images at a relatively low cost. The Kodak Personal Picture Maker 200 produced the worst.

Ink and Paper

Instead of the four inks used by traditional ink-jet printers, four of the five photo printers we tested use six inks, adding light cyan and light magenta to the mix. The two additional inks help improve highlight detail by forming subtler dots than full-strength cyan or magenta can. (Yellow ink is already so light that there's no point in introducing a light yellow ink.) The odd man out is the Photosmart 1218, which uses the conventional

four inks but prints at a very high resolution of 2,400 by 1,280 dpi.

Only one of the printers, the Canon S800, features individual ink cartridges for each color. The others use one cartridge for black and another for all the color inks; when one color-ink compartment is empty, you have to replace the whole set of color inks. Canon's multiple-cartridge approach is much more efficient and may save you money if you tend to use one ink more heavily than others. But if your ink use is evenly distributed among the colors, the extra cost of the individual cartridges

may cancel out any savings.

If you're expecting to produce large images, keep in mind that only the Stylus Photo 1280 offers print areas larger than 8.5 by 11 inches, outputting prints as large as 13 by 44 inches on roll-fed panoramic paper (the roll-feed mechanism is included) or up to 13 by 19 inches on SuperB-size sheets.

Direct from Digital

Several printers offer ways to simplify the process of getting images from a camera to paper without the intervention of a Mac. Both the Personal Picture Maker 200 and the Photosmart 1218 come with built-in CompactFlash and SmartMedia readers. These let you plug your digital camera's storage medium directly into the printer and start printing. Unfortunately, not all cameras that use CompactFlash and SmartMedia are supported by all printers; check for compatibility before you make a purchase.

While this feature may be handy for making quick index prints, there are few digital-camera captures that won't benefit from preprint editing. The Personal Picture Maker 200 is also capable of hosting a USB Zip drive, from which it can print images—useful because you can transfer edited images to a Zip cartridge and then load the cartridge into your printer, allowing you to print without tying up your Mac. The S800 includes a separate CompactFlash reader, but it connects to your computer, not to the printer.

Photo Finish

The most important measure of any photo printer is the quality of its printed images. We printed a photograph at each printer's maximum resolution on the specialty paper provided by the vendor, and we rated the prints' color fidelity (the accuracy of color reproduction) and continuous tone (the lack of an obvious dot pattern).

A Photo Finish

Macworld
LAB TEST

Best results in bold.	MICROSOFT WORD 2000	ADORE PHOTOSHOP 6.0.1		HIGH-RESOLUTION PHOTO		LOW-RES. PHOTO	GRAY SCALE	TEXT	
		Text Document	High Resolution	Low Resolution	Color Fidelity	Continuous Tone	Image Quality	Neutrality	Sharpness
Canon S800	12:10	5:05	1:12	•••	•••	•••	•••	••	•
Epson Stylus Photo 780	5:27	25:27	0:42	•••	•••	••	••	••	••
Epson Stylus Photo 1280	5:41	24:56	0:41	••	•••	••	••	•	••
Hewlett-Packard Photosmart 1218	2:35	7:25	1:52	••	••	•••	•••	•••	•••
Kodak Personal Picture Maker 200	5:11	24:41	6:31	•••	••	•	•	•	••

◀ Better ▶ Better ▶ Better

Speed-test results are in minutes:seconds. We printed a ten-page Word document, both a 22MB high-resolution and a 100K low-resolution Photoshop image, and a 748K PDF file using Adobe Acrobat 4. We measured times from the moment the print button was clicked on to the moment the last page fully emerged from the printer. We set Photoshop's memory partition to 75MB. Our test system was a Power Macintosh G4/500 with 128MB of RAM, Mac OS 9.1 installed, and virtual memory enabled. Macworld Lab conducted subjective tests in which a jury of experts rated each printer's output quality as excellent, acceptable, or poor.—Macworld Lab testing by Ulyssis Bravo

When reading our scores, keep in mind that color fidelity is largely related to the accuracy of the printer's included ColorSync profiles. We used a Photoshop Lab file as our test image to ensure that each printer's vendor-supplied ColorSync profile was the only profile that affected the color. If you plan to generate custom profiles for your own system, you may be able to improve the printer's color fidelity. (For tips on constructing custom profiles, see "Show Your True Colors," *How-to*, April 2001.)

All the printers we looked at received at least acceptable ratings for color fidelity and continuous tone. But the Stylus Photo 780 was the clear winner, rated excellent by our jury in both categories. Its larger sibling the Stylus Photo 1280 produced excellent continuous tone, but it scored slightly lower in the color-fidelity test because the image appeared slightly undersaturated. The S800 and the Photosmart 1218 each had some problems with color fidelity, showing slight color casts, but the S800 had better continuous tone. The Personal Picture Maker 200 had excellent color fidelity, but it displayed the worst continuous tone and was noticeably less sharp than any of the other printers.

We also looked at how well the printers produced neutral gray-scale images using all the colors. (This extends dynamic range by producing a darker black than black ink alone can achieve, and it gives a better continuous tone.) The only printer that produced a good neutral black-and-white image was the Photosmart 1218. The S800 and the Stylus Photo 780 printed slightly off-neutral images, while images from the Stylus Photo 1280 and the Personal Picture Maker 200 had an obvious and objectionable color cast.

Although all these printers are optimized for photographic output on specialty paper, we looked at their performance with both text files and low-resolution photographs on lower-priced plain paper. (The specialty papers are too expensive to use for text or draft prints.) The Photosmart 1218 was the only printer that pro-

duced excellent results in these tests. The S800 did a good job of printing photographic images on plain paper, but its text output was noticeably less sharp than any of the other printers. Both Stylus Photo models produced acceptable (but slightly fuzzy) results. The Personal Picture Maker 200 printed text acceptably, but it had by far the worst photographic output on plain paper, with garishly oversaturated colors and blocked-up shadows.

Slow Progress

Sluggish speed is one of the trade-offs you make for printing in color. The Photosmart 1218 was fastest on our text document and came in just behind the S800 on the high-resolution Photoshop image—taking nearly seven and a half minutes, compared with the S800's five. Both Stylus Photo models and the Personal Picture Maker 200 took close to 25 minutes to print the same photograph. However, the S800 was much slower than the other models when printing text. You can increase your printer's speed by lowering the resolution setting, but remember that this will also lower image quality. The notable exceptions to this were the Stylus Photo printers; we could see very little difference between their output at 2,880 by 720 dpi and at 1,440 by 720 dpi.—BRUCE FRASER

EDITORS' CHOICE

Epson Stylus Photo 780 For photographic output, this was the clear winner among the five photo printers we tested. Although slow, it produced the best high-resolution prints. It is also the least expensive model in its category.

Company: Epson (800/873-7766,
www.epson.com)

Company's estimated price: \$149

"A printer's actual resolution—the degree to which it can resolve fine detail—is always less than the stated resolution, sometimes much less."

tions, with resolution enhancement on the lower resolutions. Most resolution-enhancement technologies modulate the laser to produce dots of different sizes (although never smaller than allowed by the printer's maximum resolution). This variation often produces even better gray-scale halftones and smoother edges on characters than the printer's highest resolution can. In other words, a 600-dpi laser printer with resolution enhancement may produce better-looking output than a 1,200-dpi laser without it.

PostScript Most laser printers include either an Adobe-licensed PostScript interpreter or a PostScript-compatible interpreter from a third party (called a PostScript clone). The vast majority of today's PostScript-clone RIPs seem to do every bit as good a job as those sanctioned by Adobe. If you need to print only pages of text, you probably don't need PostScript, but if you want to print documents from PostScript-based applications, a PostScript RIP is essential.

Choosing Your Ink-Jet Printer

Many of the criteria you'd use to judge a laser printer—such as print quality and speed—also will apply to ink-jet printers. (To learn how all-purpose and photo-quality ink-jet printers fared in our tests, see "Colorful Competition" and "A Photo Finish.")

Image Quality If it's difficult to make meaningful judgments based on a laser printer's resolution specs, it's just about impossible with an ink-jet printer's. This is because inks soak into paper—bleeding and blending into one another—to varying degrees,

depending on the paper's composition. Ink-jet resolution specs are like clothing sizes: you can use them to compare different items from the same vendor, but when you start comparing different brands, you have to go beyond the manufacturer's information. The only reliable way for you to judge ink-jet image quality is by looking at print samples, preferably printed on the same paper you intend to use regularly.

When you test a printer, make sure the paper settings in the printer driver match the type of paper you're using. These settings control the amount of ink the printer lays down and the dither pattern it uses to do so. Too much ink will produce oversaturated and dark prints, while too little will produce washed-out results. Check for obvious ink dots and smoothness of tone. You should also examine the image's color for natural-looking skin tones and the presence of highlights and shadows.

Paper and Ink The results you get from an ink-jet depend heavily on the combination of ink and paper stock. An ink may produce gorgeous results on one paper and hideous ones on another, so take a look at the types of paper supported by any printer you're considering; make sure they're up to your standards. If you plan to use third-party inks or papers in your printer, you may want to join one of the many mailing lists devoted to the various ink-jets (try www.leben.com/lists/epson-inkjet/info.html, for

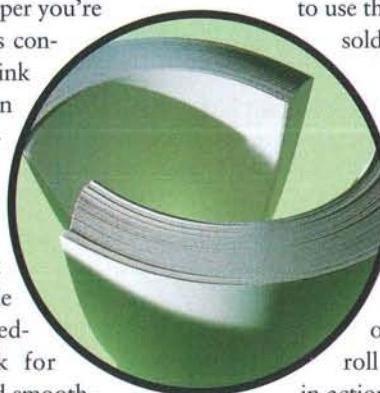
example). You'll learn from others' experiences which ink-and-paper combinations get good results.

Remember that your printer's consumables will play a big role in your bottom line. With some ink-jets, you can replace a single ink when it runs out; with others you're forced to replace all the ink colors—even if some are still full. Check to see whether the ink-jet model you're considering is widely supported by third-party ink vendors (try doing a Google search on ink-jet inks). If it isn't, you may have to use the more expensive inks sold by the printer vendor.

Noise Finally, be sure to weigh the annoyance factor. Ink-jet printers vary widely in the amount of noise they make: some are almost silent, while others shake, rattle, and roll. Try to hear the printer in action before you buy it.

The Last Word

Printing from the Mac has never been easier or more affordable, so take time to analyze your needs. Consider the operating costs, as well as the purchase cost, of any printer. Give due weight to features you absolutely must have and to those you'd like but can live without. If you follow these guidelines, you'll end up with the printer that's best for you. **m**



BRUCE FRASER is a coauthor of *Real World Photoshop 6* (Peachpit Press, 2001), which he proofed on a ten-year-old Apple LaserWriter Pro 630 and an Epson Stylus Photo 1270.

I'd heard a lot of buzz about ATI's new RADEON™ MAC EDITION, its stunning 3D acceleration, 32MB DDR graphics memory and flexible display support. I wondered, would this graphics accelerator really make designing easier and faster? Wow! It didn't take long to find out. RADEON™ MAC EDITION rendered the most complex 3D elements faster than I'd ever seen; even when working in 32-bit true color! My projects literally sprang to life with incredible detail and realism. But RADEON™ MAC EDITION isn't all work and no play. The 3D gaming – on my lunch break of course, is just as incredible with noticeably faster frame rates. With the fastest rendering speeds available, animations are fluid and life-like. Plus, I can hook up a TV for a big-screen experience. 3D rendering performance, awesome gaming, and display flexibility make RADEON™ MAC EDITION one wicked card!



RADEON™ MAC EDITION is "...our top pick in
3-D graphics cards."

-MacWorld.com, January 24, 2001



32MB
PCI & AGP

Macworld
Macworld



Visit ati.com

Copyright 2001 ATI TECHNOLOGIES INC. All rights reserved. ATI and RADEON are trademarks and/or registered trademarks of ATI Technologies Inc. All other company and/or product names are trademarks and/or registered trademarks of their respective owners.



OTHER ARTICLES
IN THIS SECTION

**70 Think Outside
the Picture Box**
Break through
boundaries with
QuarkXPress
clipping paths.

**77 Web Publishing
Secrets**
Find and replace
in Dreamweaver.

**81 Print Publishing
Secrets**
Plan ahead for
perfect printing.

85 Mac OS X Secrets
Build and run
a site with Apache
Web Server.

88 Mac 911
This month
we've got 50
percent more
tips and tricks!

OLD MAC  NEW TRICKS

PUT THAT **MAC** BACK TO WORK AS AN **MP3** **JUKEBOX**

BY ADAM C. ENGST

Forget Napster. The real significance of MP3 is that it's a highly efficient format for storing audio—not that it's inherently related to the Internet. In fact, the most exciting aspect of MP3 is that it offers new ways to enjoy the music you already have, without long downloads or ethically ambiguous copying. You can convert music from the audio CDs you already own, play it from your Mac, shuffle through your entire music collection quickly, and create custom playlists that span many different albums, deleting those songs you've never liked. And the best part? None of this requires a fancy new machine—just a PowerPC-based Mac with a lot of hard drive space.

In previous installments of our "Old Mac, New Tricks" series (*How-to*, June and July 2001), we helped you get your old Mac up and running and showed you how to turn it into a Web server. Now we'll show you how you can use that elderly Macintosh as an MP3 jukebox that will supercharge your stereo system.

ILLUSTRATION BY DAN WINTERS AND GARY TANHAUSER



STEP 1 Choose Your MP3-Jukebox Hardware

The first thing you'll need to do is make sure your old Mac has sufficient CPU power to handle playing MP3s. You'll also probably need some additional hardware, since the original hard drives in old Macs are seldom large enough to store your entire music collection as MP3 files.

Recommended Models If you're eager to put that old Quadra 650 to work—sorry, but you need a PowerPC-based Mac. No MP3 software works on 680X0-based Macs. You can use a Power Mac 6100 to play MP3s, but you'll probably have to encode your CDs on a newer Mac and transfer them to the 6100. For this project, I recommend a Mac with a PowerPC 603 chip or later, such as the Performa 6400 or Power Mac 8500. (Check the Apple Spec database at <http://support.info.apple.com/info.apple.com/applespec/applespec.taf.>)

These models have enough power to play MP3s without skipping while simultaneously handling a few other tasks. A PowerPC-based PowerBook (any four-digit model number, such as the PowerBook 3400) is an even better choice, since it will require less space in your home, not to mention less electricity. And perhaps the ideal MP3 jukebox—if you happen to have one lying around—is Apple's stylish limited-edition Twentieth Anniversary Mac (which features a PowerPC

603e CPU, an easy-to-replace IDE hard disk, and a Bose Acoustimass sound system).

RAM Having a lot of RAM isn't particularly important for a Mac acting as an MP3 jukebox. MP3 players generally require 5MB to 8MB of available RAM, so Macs with at least 32MB of RAM should work fine (at least with Mac OS 8.6 or earlier—Mac OS 9 would be better served by 64MB of RAM).

ONE ALBUM CAN EAT UP 30MB TO 80MB OF HARD DRIVE SPACE

Hard Drive Hard drive space is a different issue. Old PowerPC-based Macs came with 500MB to 2GB of hard drive space. Since a single album converted to MP3 format can eat up 30MB to 80MB (depending on the length of the album and your encoding settings), the bad news is that you'll almost certainly need a larger hard drive.

The good news is that huge hard drives are insanely cheap these days. For about \$250, you can get an 80GB IDE internal hard drive, a 36GB SCSI internal hard drive, or an external

40GB FireWire hard drive. Visit [dealmac](http://www.dealmac.com) (www.dealmac.com) or Price Watch (www.pricewatch.com) to find low prices. So which type should you get?

If your old Mac supports internal IDE drives, your first choice should be IDE. Even if your Mac has an internal SCSI hard drive, as long as it has a PCI slot, you can

buy an inexpensive IDE card such as the \$100 Sonnet Technologies Tempo Ultra ATA66 (; www.macworld.com/2000/09/18/reviews/ata.html), which lets you add an internal IDE drive instead of a more expensive internal SCSI drive. An internal IDE hard drive is by far the cheapest option, making it ideal for this project, since you probably don't want to invest too much in an old Mac. An internal drive also cuts down on noise, and you won't have to fuss with turning external drives on and off. The PowerPC-based PowerBooks, almost all PowerPC Performas, and a few Power Macs support internal IDE. PowerBooks use 2.5-inch hard drives, which are smaller and more expensive than standard drives.

If your old Mac has an internal SCSI hard drive and you want to stick with SCSI, you can buy a large internal or an external SCSI hard drive (the only option for NuBus-based Power Macs), or you can opt for a FireWire PCI card and an external FireWire hard drive. An internal SCSI drive will be less expensive than either an external SCSI drive or the combination of a FireWire PCI card and external drive. However, with the FireWire approach, you can get a card that also supports USB, such as the \$140 Sonnet Tango FireWire/USB PCI card (949/587-3500; www.sonnettech.com). With USB capabilities, you can control your MP3 software via a Keyspan Digital Media Remote, a tiny remote control (see "MP3 Jukebox Gadgets").

Installation of an internal hard drive is more complex than plugging in an external SCSI or FireWire cable, especially with some PowerBooks, but if you've installed hardware in a Mac before, it's not too difficult. You can find assistance at AccelerateYourMac (www.xlr8yourmac.com), and this might also be a good time to solicit some help from a friend with more installation experience. After you've installed the hard drive and put your Mac back together, start up from a Mac OS CD-ROM and use the Drive



All Together Now The single-window interface of iTunes works well for a dedicated MP3 jukebox, since you don't have to open, arrange, and close numerous windows to access controls and playlists.

Setup utility to initialize the hard drive. Then, if you've replaced your old internal hard drive or want to use the new drive as your startup drive, install a fresh copy of Mac OS—preferably a copy of Mac OS 8.6 or, if you want to use Apple's iTunes, 9.0.4 or 9.1.

STEP 2 Pick Your MP3 Software

2 MP3's popularity has resulted in oodles of programs that can play MP3 audio files and a smaller number that can encode audio from a CD into MP3 format. I prefer those that can both play and encode, because you can do everything in a single program. In particular, I recommend Apple's iTunes and Panic's Audion. Casady & Greene's SoundJam MP is also good, but the company stopped selling the program in June.

iTunes After using SoundJam for some time, I've come to prefer the interface of Apple's free iTunes 1.1 (4½; *Reviews*, June 2001). Written by the programmers responsible for SoundJam, iTunes shares most of its important features, including flexible playlists, a variety of encoding options, and broad support for portable MP3 players. And iTunes goes beyond SoundJam with its ability to burn custom audio CDs without requiring another program, such as Toast. And its single-window interface works better on a Mac dedicated to playing MP3s than the multiple-window interfaces many other MP3 players use (see "All Together Now").

Audion Panic's \$33 Audion 2.1 (4½; www.macworld.com/2001/02/23/reviews/mexpress.html) offers all the basic features, such as playlists, skins, and visual plug-ins, and adds a host of less common ones, including a waveform-based MP3 editor (useful for trimming applause from live songs), an equalizer that can operate on everything or on specific songs, a two-track mixer, speed control, and additional encoding capabilities. Audion pays special attention to how people interact with their music col-



MP3 Jukebox Gadgets

You can enhance your MP3 jukebox with a transmitter, for sending MP3 audio to your stereo, and a remote control, for controlling MP3 software from a distance.

Transmitters and Receivers What do you do if your MP3-playing Mac is across the room from your stereo's amplifier and speakers? Akoo's \$100 Kima KS-110 and RF-Link's \$120 Cam Pro (4½ and 4½, respectively; www.macworld.com/2001/05/23/reviews/wirelesstrans.html) use a transmitter attached to your Mac to broadcast audio to a stereo-connected receiver. Both devices work roughly like cordless phones—the Kima transmits in the commonly used 900MHz band, while the Cam Pro operates in the 2.4GHz band, like newer cordless phones. The Kima comes with all the cables you need and features a pass-through jack for plugging additional speakers into the transmitting Mac so you can both transmit audio to your stereo and listen to it on speakers connected to your Mac. The Cam Pro is designed to transmit audio and video, so it includes video cables; you'll need to buy another cable to connect your Mac's headphone jack to the Cam Pro's RCA jacks.

Remote Control If the perfect spot for your MP3 jukebox Mac is someplace relatively inaccessible, you can control your MP3 software via Keyspan's \$49 Digital Media Remote (4½; www.macworld.com/2000/03/reviews/digimediaremove.html). This credit card-size remote sends infrared commands to a receiver connected to the Mac's USB port (you'll need to add a PCI or PC Card USB adapter to your old Mac). The device requires a line of sight to its receiver, and its software can control any Mac application by simulating keyboard shortcuts.

lections via features such as a per-song play counter, support for album-cover art, personal popularity ratings, and playlists that update to reflect the organization of your MP3 files in the Finder.

Bottom Line Both of these programs work well, but if you're running Mac OS 9.0.4 or later, you can't beat Apple's free iTunes. If you have an older version of Mac OS, choose Audion, though on an underpowered Mac such as the Power Mac 6100, you might find it sluggish. In that case, I'd recommend using iTunes to encode MP3s from your CD collection on the newer Mac, copying the MP3 files to the older Mac, and using a simple, efficient MP3 player such as the free GrayAMP from Digital Thoughts (www.digitthought.net).

STEP 3 Set Up Your Speakers

3 With MP3 audio, sound can come from one of three sources: your Mac's built-in speakers, standard multimedia speakers, or the speakers connected to your stereo system.

Built-in Speaker The Twentieth Anniversary Mac is possibly an exception, but overall I can't recommend using your Mac's built-in speaker for listening to MP3s. The quality of internal speakers generally stinks. You can't get separation of the right and left channels for stereo sound, and the volume most certainly does not go to eleven, so you're not likely to be able to hear your music from across the room or crank the volume for your favorites.

continues



Multimedia Speakers The easiest approach is to connect a pair of powered multimedia speakers to your Mac's headphone jack or USB port. The quality of these speakers ranges from poor to quite good, though they seldom can compete with speakers attached to a stereo system's amplifier. They do require an extra electrical socket, and unsightly wires running to the Mac and between the speakers.

Stereo Speakers You'll hear the best quality if you play your MP3s through a stereo system's amplifier and speakers. This approach requires a Y-cable connected from your Mac's headphone jack to an unused pair of red and white RCA input jacks on your stereo; you can find these inexpensive cables at an electronics store such as Radio Shack. The main downside of this approach is that you may not find it convenient to locate your Mac physically close to the stereo (see "MP3 Jukebox Gadgets" for some solutions).

STEP 4 Rip Your Audio CDs

With your Mac and speakers set up and the MP3 software installed, you're ready to turn your audio CD collection into MP3 files. Be forewarned that encoding will take time on older Macs, perhaps up to twice as long as it would take to play the CD. I found it convenient to put a pile of CDs next to my MP3 Mac and encode them whenever I thought of it. If you're in a hurry, consider encoding on a faster Mac and copying the files to your MP3 Mac later. Also, you can save laborious typing of track names if you encode your CDs on a Mac with an Internet connection, since both iTunes and Audion can download the names of audio CD tracks from the Internet-based CDDB database.

When it's time to choose encoding settings, it's best to start with the default settings, which means 128 Kbps (kilobits per second) in Audion and 160 Kbps in iTunes. If your ears

MP3 Jukebox Tips

- **MP3 Server** If you store your MP3 files on a networked Mac running Mac OS 9's File Sharing over TCP/IP, you can play them from any Mac on your network, even machines using an AirPort wireless network.
- **Backup Bonus** When you're making a backup of your Mac (you are backing up, aren't you?), it's best to exclude MP3 files. They take up vast amounts of space, they don't compress, and you can always encode them again should calamity strike. Another approach would be to burn them to CD-R for a backup that you can also play in portable MP3-CD players.
- **Universal Pause Button** In iTunes or Audion, to pause playback quickly if the phone rings, just press the space bar (other MP3 players may use a different keyboard shortcut). Press it again to resume play. If you're running other applications on your MP3 jukebox, use a macro program to create a hot key that switches to the MP3 program and presses the space bar for you.

are sensitive enough to hear quality loss after you've encoded at the default settings, try again at a higher bit rate, such as 160 Kbps or 192 Kbps. One significant drawback is

IT'S BETTER TO START WITH THE DEFAULT ENCODING SETTINGS

that files encoded at higher bit rates take up more hard drive space. (See "MP3 to Go," February 2000, for more information.)

STEP 5

Create Playlists and Play

When you start using your MP3 jukebox, you might just play a single album at a time. But you can do so much more with MP3 files.

All MP3 players can shuffle songs randomly, just like traditional multi-disc CD players. The difference is that with your MP3 jukebox, you are able to shuffle hundreds or even thousands of songs, as opposed to just those from the few CDs that fit in your CD player. It's your very own radio station.

You can also create playlists—collections of songs just like those compilation tapes you made back in

college, only they're not limited to a 90-minute cassette. You might start with a playlist of your all-time favorites, of all your jazz recordings, or of just Beatles songs. Once you've gotten the hang of it, how about a playlist of dance music, or music you like to listen to while making dinner, or quiet evening music? Only your imagination limits the ways you can mix and match your music.

The Last Word

You may not be able to stock your new jukebox with free music from Napster anymore, but that's not so important. Building an MP3 jukebox lets you appreciate the music you already own—in ways that only recently became possible. And even better, if you're like me, you'll get a warm fuzzy feeling from using your old Mac to infuse your stereo system with intelligence. ■

Contributing Editor ADAM C. ENGST is the publisher of TidBITS (www.tidbits.com), the author of numerous books and articles about Macs and the Internet, and the president of the Info-Mac Network.

More Info: www.macworld.com/subject/oldmac/

Read more of our "Old Mac, New Tricks" series, and then visit the Macworld.com forums to tell us what you've done with your aging machine.



© 2001 Maxell Corporation of America.
Yum™ is a registered trademark of Apple Computer, Inc.

Yum.™

What media are you putting in your Mac®?

Some people would argue that blank media is blank media—the same people that swear Windows operates just like a Mac®.

Those of us who know that there are differences will continue to use Maxell media in our Macintosh®.

We will also continue to be more interesting, more enlightened human beings.

For more information please visit www.maxell-data.com or call 1-888-2-MAXELL.

maxell
THE MEDIA MATTERS

Think Outside the Picture Box

QuarkXPress Clipping Paths Set Your Images Free

You've surely heard the management consultant's rallying cry "Think outside the box!" It refers to breaking away from habitual thinking to achieve a goal, and the credo is as useful for graphic artists in T-shirts as it is for CFOs in yellow ties.

Putting an image inside a framed box is fine for some designs, but when you're trying to make a strong visual statement that really catches the viewer's eye, try letting your pictures break outside their boxes, if only a little bit. Say you're working with a photo of a gleeful woman with outspread arms. You can put it inside a framed picture box, but the box's rigidity may work against the action in the photo. Make your subject's arms break past the frame border, and you add life and motion to your layout.

It's easy to cross boundaries once you understand how QuarkXPress 4.1 and Adobe Photoshop 6 handle cropping and clipping. QuarkXPress picture boxes *crop* images into the shape of the box—usually a rectangle. Photoshop lets you *clip* an image into any shape by embedding Bézier paths into the image. QuarkXPress can read those paths and merge them with cropping rectangles to create custom paths that free your pictures to go beyond their boxes. **m**

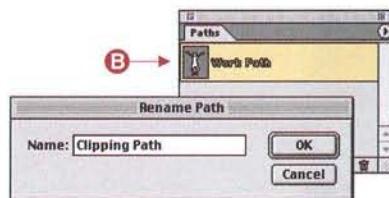
DAVID BLATNER is the author of *The QuarkXPress 4 Book* (Peachpit Press, 1998) and a coauthor of *Real World Photoshop 6* (Peachpit Press, 2001). Find him at www.peachpit.com/blatner/.

1

Create a Clipping Path You can use QuarkXPress to build a clipping path around an image with a white background, but you'll almost certainly get a better result if you make a path with Photoshop's Bézier tool and save the path in Photoshop's Paths palette.



Open the image in Photoshop. You'll get the cleanest results by drawing the path with the Pen tool (press P to toggle to it) **A** and adjusting it with the Path Component Selection tool (press A), commonly called the "Arrow tool." Draw the path slightly inside the foreground object's edge so you don't pick up background color, which causes halos.



When you're done with the path, double-click on the Work Path tile in the Paths palette **B**, and then give it a name in the Rename Path dialog box that appears.

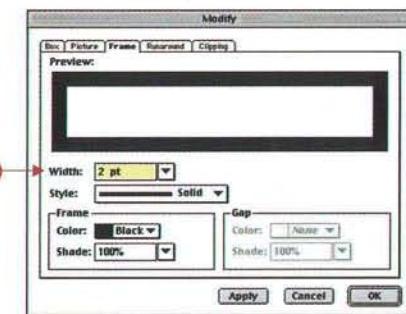
Because QuarkXPress lets you choose any embedded path as a clipping path, you don't need to specify the path type in Photoshop. Once you're satisfied with your clipping path, save it as a TIFF file.

TIP: QuarkXPress 4.X can't read clipping paths saved in TIFF files from Photoshop 6.0. Fortunately, Adobe's free 6.0.1 upgrade can fix the problem (www.adobe.com/support/downloads).

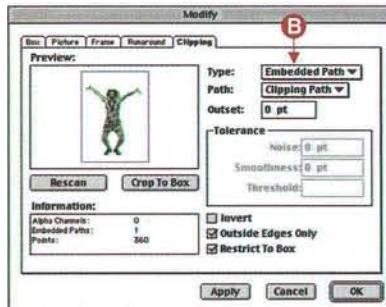
2

Import the Image and Select a Clipping Path Your picture has to have a border to burst out of. In this step, you'll choose a frame and then select the correct path.

Open your QuarkXPress layout and import your image into a picture box. If the picture box doesn't already have a border, go to the Modify dialog box (Item: Frame) and add one. The frame can be almost any thickness, but for a noticeable effect, make it at least 2 or 3 points thick **A**.



Now open the Clipping dialog box (Item: Clipping), choose Embedded Path from the Type pop-up menu **B**, and pick a path from the Path pop-up menu. QuarkXPress 4.1 can see all the paths you've embedded in your TIFF images, and it lets you choose an active clipping path. (If you use EPS or DCS images, QuarkXPress will still see other embedded paths, but they may not print correctly if you choose one other than the "official" clipping path you specified in Photoshop.) Of course, if there's only one path in the image, only it will appear in this menu.



Leave the other settings in this dialog box as they are, and click on OK.

3

Crop the Image Images can often benefit from judicious cropping. In this step, you'll ignore clipping (for the moment) and crop your image.

Change the size of the picture box by dragging its corner **A** or edge handles **B** until the part of the image you want cropped out is invisible. The box should be exactly the size you want it to be in the final layout. (You can change the shape of the box later on.)



At this point, you're focusing only on cropping, so you can ignore the fact that the portion of the image you want to break outside the box is currently cropped out.

TIP: Behind the scenes, clipping paths and cropping are actually the same thing. The image file itself stores clipping paths, and the page-layout program handles cropping—but when it comes time to print, the PostScript device can't tell one from the other.

continues

More Info: www.macworld.com/cgi-bin/ubb/Ultimate.cgi

If you have a QuarkXPress quandary or question, head to Macworld.com's Design and Publishing forum.

LINK

surf's up way up!



COWABUNGA!

• • • MAKE THIS A WIN-WIN SUMMER! WITH THE MACWORLD PRICEFINDER, YOU WIN EVERY DAY WITH LOADS OF QUALITY MACINTOSH PRODUCTS, PRE-SELECTED AND REVIEWED BY OUR SAVVY EDITORS. YOU'LL FIND THE BEST PRODUCTS, SORTED BY THE BEST OUT-THE-DOOR PRICES FROM A VARIETY OF ONLINE STORES! FOR THE ULTIMATE MAC SHOPPING EXPERIENCE GO TO [WWW.MACWORLDPRICEFINDER](http://WWW.MACWORLDPRICEFINDER.COM) TODAY!

AND YOU COULD WIN THE GRAND PRIZE OR THE FIRST PRIZE — IT'S EASY TO ENTER! GO TO: WWW.MACWORLD.COM/SWEEPSTAKES/SURF AND FOLLOW 3 SIMPLE STEPS! NO PURCHASE NECESSARY.

• • • STOP SPENDING YOUR NOT-SO-ENDLESS SUMMER SURFING FOR DEALS ON MAC PRODUCTS — GO TO MACWORLD PRICEFINDER INSTEAD! REVIEW. COMPARE. BUY SMARTER!

THERE ARE WAVES OF MAC PRODUCTS TO CHOOSE FROM, BUT WHICH ONE IS RIGHT FOR YOU? DON'T WIPE OUT ON THE WEB, DUDE — LET THE EXPERTS AT MACWORLD SURF FOR YOU!

THIS SUMMER, ENTER THE MACWORLD PRICEFINDER SURFIN' SWEEPSTAKES!

YOU COULD WIN THE GRAND PRIZE —
**A POWER MAC 733 MHZ G4 WITH
SUPERDRIVE!** BURN YOUR OWN DVDs!
IT'S THE ULTIMATE MACHINE FOR RIDING
WHATEVER CREATIVE WAVE COMES OVER YOU.

OR



HOW ABOUT THE AWESOME FIRST PRIZE —
**YOUR OWN CUSTOMIZED, HAND-SHAPED
PRIMO SURF BOARD !!** THIS ONE-OF-A-KIND BOARD FASHIONED BY WORLD-RENNED SHAPER, BILL STEWART, WILL BE ON DISPLAY AT MACWORLD EXPO NEW YORK, JULY 18 - 20TH, 2001!

FOR ALTERNATE METHOD OF ENTRY AND DETAILS, SEE OFFICIAL SWEEPSTAKES RULES ON PAGE 116 OF THIS ISSUE. VOID WHERE PROHIBITED BY LAW. SWEEPSTAKES ENDS 9/28/01.

Macworld
PRICEFINDER

4

Extend the Picture Box Now it's time to focus on the portion of the image that breaks past the box boundary. This is the weird part: to create this effect, you first need to extend the picture box so that the parts you want ultimately to appear *outside* the box are *inside* it.



After adding points and making the arch, you can drag the points around until your box is the right size and encompasses the parts of the foreground image you want visible **B**.



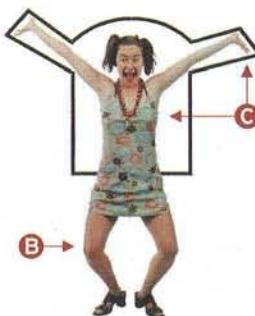
This point-adding technique is worthwhile because you don't have to move any of the box's *original* corners or edge handles. Preserving the corners and edge handles makes it easier to get the look you want.

5

Crop to Box Just as you can turn off clipping (by selecting Item from the Clipping dialog box's Type pop-up menu), you can also turn off cropping. In this step, you're merging the embedded clipping path and the cropping box into a new clipping path.



Now that you've cropped your image, retaining the portions you want to break through the frame, return to the Clipping dialog box (Item: Clipping, or ⌘-option-T). Deselect the Restrict To Box option **A** and click on the Apply button.



With Restrict To Box turned off, QuarkXPress clips but doesn't crop, and your picture can spill past the box's borders. At this stage, the parts you eventually want cropped out should appear outside of the box (*not* cropped) **B** and the parts you want to appear outside of the box should be within the modified frame **C**.

Now you can merge the clipping path and the cropping shape by clicking on the Crop To Box button in the Clipping dialog box.

Click on OK, and you've got a cropped—but not clipped—image **D**. Your image will appear unchanged; in the next step, the difference will become clear.



continues

6

Set the Crop Again The last step in this technique restores the box to its original shape. When you're done, you'll have an image cropped only where you want it cropped; the rest will be outside the box.



When you're done removing the points, you can leave the box as it is or go to the Shape submenu and change the box back to the rectangle or oval or whatever shape it was to begin with. The result is a boxed image with a cropped section and a section that extends past the box's border **B**.

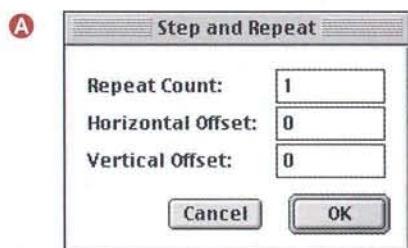


If you didn't add points to the box (as in step 4) but rather dragged out a corner or edge handle to enclose part of the image, you can ignore the previous paragraph and instead drag the box's handles to make it smaller again. As you drag, you'll find that the parts you want to extend over the box's border are doing so. Warning: Don't drag the corners or edges that affect the cropped sections (the part of the image you want cropped), or you'll ruin the effect.

7

Clipping Portions of an Image You may want to include your image's background. You can't achieve this with a single picture box, but you can fake it easily enough.

Now you have part of your image appearing outside of the picture box. If you want to restore your image's original background, go to the Item menu and choose Step And Repeat. Make one duplicate of the picture box, with offsets set to zero **A**. (This clones the picture box and keeps the two boxes in perfect registration.)

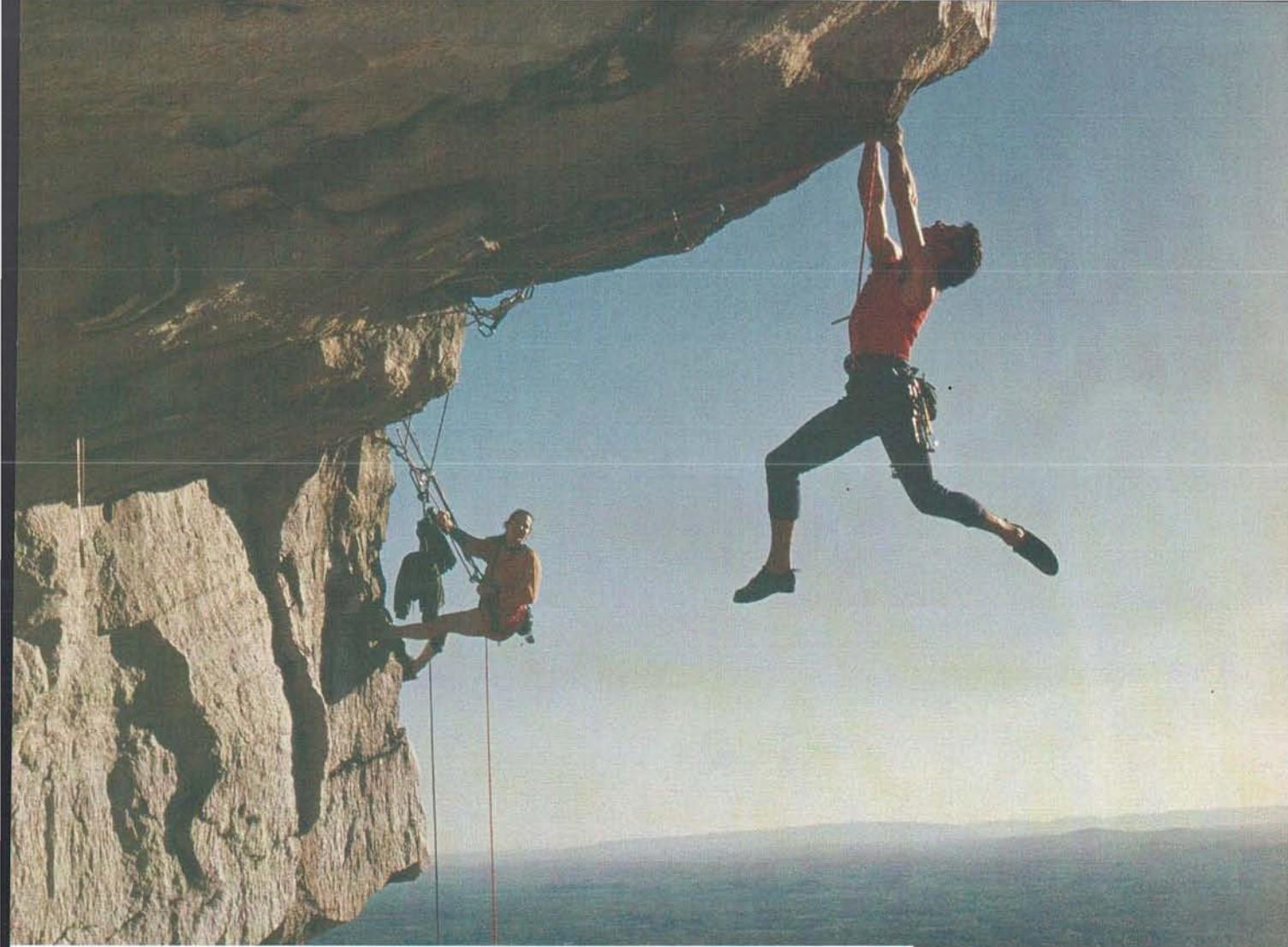


With the duplicate box selected, go to the Clipping tab of the Modify dialog box (press ⌘-option-T), and select Item from the Type pop-up menu to turn off the clipping path entirely. Click on OK.

To put the cloned box behind the original, where it belongs, choose Send To Back from the Item menu. Now you should see the image background *and* part of the image breaking out from the box.



As a final touch, group these two boxes (⌘-G) so you won't accidentally move one without the other later on.



We're the part of your Web site you can't afford to miss.

Interland's Web hosting solutions allow your business to run better, faster, smarter and more reliably. We're not just a server, we're a best-of-breed hosting service. In fact, we've won multiple awards for our reliable, high-performance services. Our strategic partnerships, industry leadership and solid business model give you peace of mind to focus on taking your business to the next level. With Interland, the right parts are always in place.



For more information, call 1 866-270-5282 or visit us @ www.interland.com/macworld.

interland
We make the Web work for you.™

BUSINESS CLASS HOSTING MANAGED SERVICES APPLICATION HOSTING E-COMMERCE PROFESSIONAL SERVICES

© 2001 Interland, Inc. All Rights Reserved.

Circle 11 on card or go to www.macworld.com/getinfo

Go from "No Way" to Know-How.



Remember the first time you set type on a computer? Manipulated a photo? Created an interactive Web design? Remember that "No Way" feeling before you conquered the new skill?

Your Mac gave you the power, but the inspiration, unbiased opinions, expert technique, and the answers to questions you didn't even know to ask probably came from Macworld.

So what is Macworld saying now about digital video? MP3? OSX? The know-how you need is at your fingertips monthly in Macworld. Read it and get even smarter.

Macworld

Hey! Look What Else You Can Do.

www.macworld.com

© 2001 Mac Publishing, L.L.C. Macworld.com are trademarks of Mac Publishing. Macintosh is a registered trademark of Apple Computer, Inc.

Web Publishing Secrets

Maintaining a Web site involves daily chores, such as building new pages and removing old material. But comprehensive changes—say, swapping in a new company name on 10,000 pages—can mean many late nights of tedious work. In the first installment of our new column for Web designers, you'll learn how Macromedia Dreamweaver's Find And Replace feature can get you home on time.

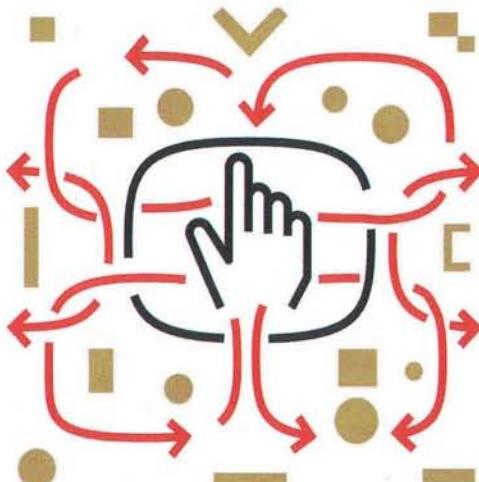
Changing a Site

Imagine changing hundreds or even thousands of Web pages in seconds. You can do it with Dreamweaver's Find And Replace command, which works much like the Find And Replace feature in programs such as Microsoft Word. Though in a word processor this feature affects only the current document, in Dreamweaver (800/457-1774, www.macromedia.com) you can use it to search multiple files. Just go to the Edit menu, open the Find And Replace window (or press **⌘-F**), and then select Entire Local Site from the Find In list. Be careful—changes to unopened files are permanent. It's a good idea to back up your site files before making widespread adjustments.

Get Specific The ability to search an entire site and replace a word or phrase is very useful, but it's only the beginning of what Dreamweaver's Find And Replace feature can do. The command's most powerful option is the ability to find a particular HTML tag and perform actions on the tag, its attributes, or its contents. For example, you can use one of these Specific Tag searches to convert underlined text to bold by changing all **u** tags to **b** tags, or to remove every instance of a particular tag—think **blink**.

Out with the Old

The World Wide Web Consortium (www.w3c.org), which determines HTML standards, may soon phase out some common HTML tags, such as the **font** tags used for formatting text. Although browser companies often deviate from standards, browsers may someday stop supporting



these tags, so you should have a plan for changing your site to keep up with the times. (For a list of these deprecated HTML tags and their suggested replacements, see www.codehelp.co.uk/html/deprecated.html.)

The most straightforward solution is to eliminate the tag altogether: open Dreamweaver's Find And Replace window and choose Specific Tag from the Search For menu. Select Font from the Tag menu, and then choose Strip Tag from the Action menu. Click on the minus (-) button to eliminate the unnecessary tag-modifier menu that appears below the Search For menu; then click on the Replace All button to finish the job.

Simply deleting every **font** tag will leave your site a dull wash of default text. Fortunately, you can use Dreamweaver's tag-based Find And Replace options to bring your site's formatting into the future with Cascading Style Sheets.

In with the New

The World Wide Web Consortium intends Cascading Style Sheets (CSS) to eventually replace **font** tag formatting. In addition to supporting the **font** options—color, size, and typeface—CSS lets you add leading, margins, borders, and other advanced typographic properties. (For tutorials and an introduction to these style sheets, visit Webmonkey at <http://hotwired.lycos.com/webmonkey/authoring/stylesheets/>.)

continues

Easy Replacements If you've used HTML tags to structure your pages logically—for example, applying heading tags (`h1` to `h6`) to headlines—you're in good shape. Just create a style with the desired properties for the heading tag, choose **font** from the tag menu, click on the plus sign (+), select Inside Tag from the drop-down tag-modifier menu, and choose the appropriate tag.

Messy Replacements Things get trickier if you've used several permutations of the **font** tag to format your text. Say a page contains four paragraphs identified by the `p` (paragraph) tag. Three of the paragraphs contain the body text and are formatted in dark blue using the **font** tag. But the fourth paragraph contains a news announcement that's red, in a different font and size. Ideally, you'd create separate styles for body text and news announcements and apply them to the appropriate paragraphs. For example, to apply a style called "announcement" to a paragraph, add the class attribute to the `p` tag, like this:

`<p class="announcement">`

The difficulty comes in identifying and applying a class to *just* the paragraphs containing news announcements. In Dreamweaver, the best way to handle this is to use the unique combination of tags and attributes formatting your text as the search pattern in a Find And Replace operation. In the previous example, if you'd originally used `<p font size="5" face="Arial, Helvetica, sans-serif" color="#FF0000>` to format the announcement, that's what you'd type in to pinpoint your search. Once Dreamweaver finds the appropriate tag, you can add a style to update it and then apply it to every page on your site with just one click.

Regular Expression Overdrive

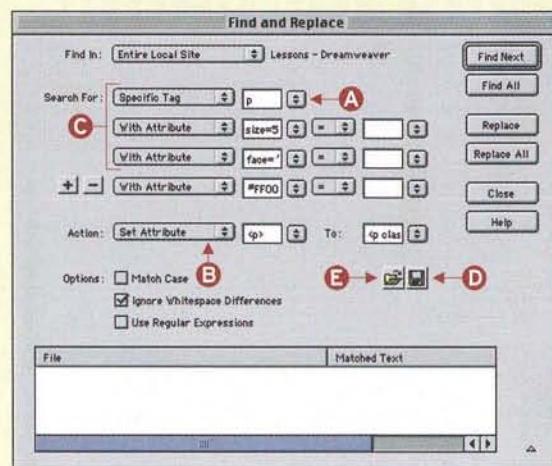
Adding textual descriptions in each image's `alt` attribute helps visitors who are surfing without graphics or who are visually impaired—but it's easy to overlook this important step.

Enter Find And Replace. Let's say you use a graphic named "banner.gif" on each of a site's 2,000 pages, and you need to set that image's `alt` attribute quickly. Open the Find And Replace window. To search every file in your site, choose Select Entire Local Site from the Find In menu; from the Search For menu, choose the Specific Tag option.

Next, select the `img` tag to search for images. But you don't want to find *every* image, so you should set several tag modifiers to limit your search. Choosing Without Attribute and selecting `alt` from the menu will bring up only images that don't have an `alt` attribute.

The final part of this search is a little tricky. Although you know you're looking for the "banner.gif" graphic, the `src` attribute—the part of the `img` tag that includes the file name—will vary from page to page. Depending on a page's location relative to the graphic, the `src` might be "banner.gif," "images/banner.gif," or even ".../.../images/banner.gif." You need a way to find every `src` attribute that ends in "banner.gif."

Mighty Find and Replace



In Dreamweaver's Find And Replace dialog box, you can specify a tag to search for **A** and an action to perform on that tag **B**. To refine the search, add one or more conditions using the tag-modifier menu **C**. Click on the floppy disk icon **D** to save search parameters; click on the folder icon **E** to recall saved queries.

The solution is to use a *regular expression*—a set of special characters that let you find patterns within text (see "Transform HTML with Regular Expressions," *Create*, November 1998).

In Dreamweaver's Find And Replace window, select the Use Regular Expressions option. In our example, you're searching for a particular pattern of zero or more characters followed by the text "banner.gif." A period (.) stands for a single character such as a letter, number, or punctuation mark. An asterisk (*) means "find the preceding character zero or more times." So combining . and * means "match *any* character zero or more times." By themselves, these two characters match *everything*, but with the name of the file added to the end—.*banner.gif—the search will yield every path that leads to the file.

All that's left is to tell Dreamweaver what to do when it finds "banner.gif." Choose Set Attribute from the Action menu; select `alt` from the Attribute menu. In the To field, type your text. Click on the Replace All button, and Dreamweaver will take care of the rest.

Dreamweaver's Find And Replace command will eliminate hours of unfulfilling grunt work so you can spend your time on the fun, creative side of Web development. **m**

DAVID SAWYER MCFARLAND is the president of Sawyer McFarland Media (www.sawmac.com) and the author of *Dreamweaver 4: The Missing Manual* (Pogue Press/O'Reilly, 2001).

We've made it so fast, nobody will catch you using it.



We know you don't want to spend any more time running Windows® than you have to. That's why we've worked so hard to make Connectix Virtual PC™ deliver true PC compatibility at speeds worthy of your Mac – up to twice as fast as the previous version. Run Windows applications, access PC networks, and share files with PC-based colleagues quickly and easily – all from your Mac. Now available with different operating systems pre-configured and pre-installed including Windows 2000, 98, Me or PC-DOS.

 **Connectix**

For more information visit www.connectix.com or call 1-800-395-2043

Read Macworld product reviews,



compare products & prices,



and buy smarter.



Get it all in the NEW Macworld PriceFinder.

■ Lab-based Reviews ■ Macworld Mouse Ratings ■ 1000s of Mac Products ■ Loads of Online Stores ■ Out-the-door Pricing

Now better than ever!

Macworld

PRICEFINDER

review. compare. buy smarter.

www.macworldpricefinder.com

Print Publishing Secrets

You can create and tweak your files using any programs you like, but if your pages don't print properly at their destination, you're sunk. Whether you send files to a service bureau or a magazine's advertising department, you must prepare them correctly to avoid extra costs and headaches. In this inaugural column for print pros—veteran and new—I spell out steps to take with every file you hand off.

Talk with Your Service Bureau

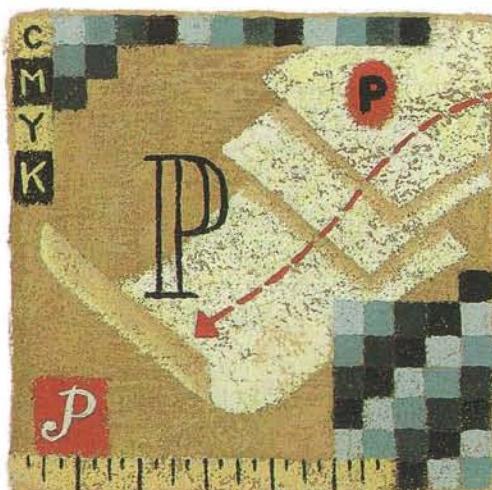
As any psychologist can tell you, the key to a good relationship is communication. And this holds true when you work with a service bureau or commercial printer—before you start, ask questions.

Use the Right Format Because different service bureaus prefer different file formats, ask whether yours wants a native file (for instance, the QuarkXPress document) or an Adobe Acrobat PDF copy of the file.

I dislike sending native files; it's just too easy for someone to change them. However, photographer Jeff Schewe taught me a great safeguard: burn your files onto a CD, and send that. If there's ever a discrepancy, you can point to the "pure" file on the disc.

A PDF file is almost always a good option; the file can't be altered accidentally, and you're less likely to forget to include your fonts (or to make other mistakes discussed later in this column). However, most folks have trouble printing PDFs that contain spot colors or duotones. In these cases, stick with sending native files.

Send a Report It's crucial to include information about your documents when you hand off your files to a service bureau; without certain details, the staff may not be able to print your files or troubleshoot if something goes wrong. Most shops offer a form that asks you for a complete list of fonts and graphics used in your document. You should also make clear your job's specifications, including whether you want crop marks printed at the pages' corners, film or paper output, and so on.



QuarkXPress's built-in Collect For Output feature creates a report that includes most of the necessary information. However, many QuarkXPress 4 users don't realize that to make a legible report, they must import the data into the Output Request template. (Look for this template in the Documents folder, which is in the QuarkXPress folder on your hard drive.)

Proof Your Files

One of the biggest mistakes that you can make when you're preparing files for print is not carefully proofreading them both on screen and on paper.

Stop Simple Mistakes Look at every word, preferably at a magnified view, to make sure it's correct. This may seem obvious, but many typos and mistakes end up in print because people are too busy to proof files. The next time you're tempted to rely on a program's spelling-checker feature, think of this: *soft wear wont sea z this s wrung*. (Most spelling checkers ignore single-letter words.)

Print and Send a Proof If you get a file to print correctly, there's a good chance the service bureau can, too. Test-print your document on a PostScript laser printer. If it's a color document, print separations to make sure that images separate correctly and that your overprints and knockouts act as expected. Incorrect or ambiguous trapping commands sometimes cause QuarkXPress to make type appear fat, and you can see this only on separations. Send these proofs to the service bureau with your file.

continues

To save paper, you can use Adobe Acrobat (\$249; 888/724-4508, www.adobe.com) as a software PostScript printer: distill your PostScript files with Acrobat (in other words, make a PDF file), and then proof your document on screen. If Acrobat can distill your file, your service bureau will usually be able to print it. But watch out: Acrobat cannot display halftones, and many people find it easier to proof color separations on paper.

Prevent Graphic Errors

Most image problems boil down to one of three things: missing files, incorrect resolution, and problem file formats.

Send High-Resolution Graphics When you import an image into QuarkXPress or Adobe InDesign, the program typically embeds a low-resolution preview and creates a link to the external high-resolution version. So if you send your native document to a service bureau, you should also send your TIFF, EPS, and DCS graphics files. Otherwise, the result will be a low-resolution, pixelated image (or a late-night phone call from someone asking where the files are).

Use the Right Resolution Your image may turn out ugly and pixelated if its resolution is too low (that is, if you don't have enough pixel data for a high-quality print). You must save your photographic images with a resolution of about 1.5 times your halftone screen frequency (the correct resolution is usually 120 to 150 ppi for newsprint and 200 to 250 ppi for the glossy paper used in magazines). Line art (in which each pixel is either black or white) must have a much higher resolution—400 to 600 ppi for newsprint, and 800 ppi or higher for magazine paper.

Choose the Proper File Format When it comes to bit-mapped data (for example, Adobe Photoshop files), use the TIFF format whenever possible—it's the easiest file format to color-manage and print. Duotones must be in the EPS format, and images with spot colors must be in the DCS format. For just about everything else, I use TIFF.

Photoshop gives you several options for compressing TIFF files (LZW compression, for example). However, compressed files occasionally cause trouble at printing time.

Sidestep PDF Pitfalls When you turn your document into a for-print PDF file, be sure to deselect image downsampling and choose ZIP as the image-compression option in the Distiller's Job Options dialog box. Otherwise, your pictures will become pixelated.

Avoid Font and Color Foibles

Nothing's worse than seeing your carefully chosen type print in an incorrect font or your lovely colors come out black. Fortunately, you have to watch for only a few mistakes.

Pass on TrueType Most imaging bureaus have trouble printing TrueType fonts, and many prefer that you use PostScript Type 1 fonts.

Send All the Fonts Collect your files and graphics into a folder, and don't forget to add your fonts—the ones you used in your documents *and* those in your EPS or DCS files. Be sure to send both the outline fonts and screen fonts.

Preflight Checklist

Fonts

- Include your document's fonts—outline *and* screen.
- Include all fonts used in EPS files.
- Use PostScript fonts instead of TrueType.

Graphics

- Check for missing or modified images.
- Include EPS, DCS, TIFF, and JPEG files.
- Make sure all graphics have the proper resolution (usually 1.5 times your halftone screen).
- Make sure color images are CMYK, not RGB.

Final Check

- Include a report with your files.
- Include the document. (Don't laugh—sometimes this is the one thing people forget after a long day!)

Choose the Right Colors By default, every scanner scans in RGB mode. When you define a color in QuarkXPress, it is based on RGB unless you tweak the settings. But in order for your color pictures and objects (type, boxes, and so on) to print correctly, you need to change them to CMYK mode—unless you're using spot Pantone colors. If you send an RGB image to an imaging center, it'll probably print only on the black plate.

Try Helpful Software

If you're willing to spend some money, several programs can help you get your files together and avoid mistakes.

If you use QuarkXPress, check out Gluon's \$149 QC 4 with Collect XTension (212/343-1755, www.gluon.com). It can alert you to a number of potential problems in your document, such as images that are scaled too large. The great thing about this extension is that it gives you feedback *while* you're working on your document. When you're ready, QC Collect can also collect the fonts for you.

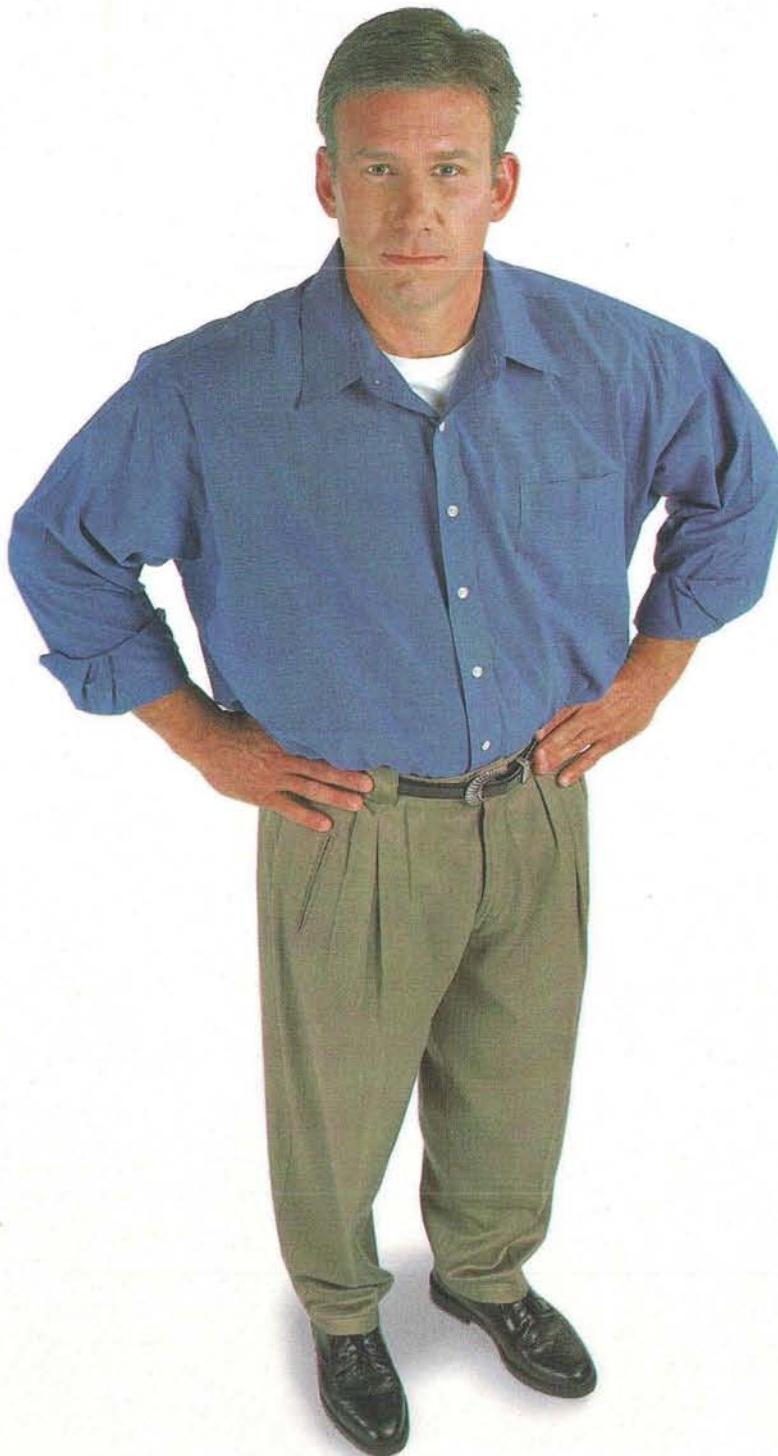
Preflight software can help find potential errors before you commit a file to print. Markzware's \$399 Flightcheck (800/300-3532, www.markzware.com) and Extensis Software's \$400 Preflight Pro (800/796-9798, www.extensis.com) both check font usage, picture resolution, color mode, and so on.

Stay Optimistic

If you follow the steps we've outlined, you'll avoid the most-common errors and boost your odds of getting reliable, high-quality prints. ■

Contributing Editor DAVID BLATNER is the author of *The QuarkXPress 4 Book* (Peachpit Press, 1998) and a coauthor of *Real World Photoshop 6* (Peachpit Press, 2001). Find him at www.moo.com.

Come see us at Macworld Expo NY | Booth 1525



The File Share Folks™



My files are important.

Very important.

I only share my files with those I trust.

I trust DAVE®.

Mac to PC, PC to Mac. Cross-platform file and print sharing is too vital to your business to risk. Trust Thursby, the company with 15 years experience. Trust DAVE, the solution with a proven track record. Share files and printers across a network with no barriers. DAVE installs on your Mac with no additional software required for the PC. It's fast, secure and easy to use. Download a free evaluation today!

Trust **DAVE**®.



www.thursby.com

Mac is a trademark of Apple Computer, Inc. registered in the U.S. and other countries. The "Built for Mac OS X" graphic is a trademark of Apple Computer, Inc., used under license. DAVE is a registered trademark of Thursby Software Systems. © 2001, Thursby Software Systems



HUB.
HINGE.
CRUX.
CENTER POINT.
AXIS.

Where It All Comes Together—Seybold Seminars

Delivering content today involves considerations unheard of just a few short years ago. Digital communication technologies—the Web, Internet-enabled cell phones, PDAs, broadband, streamed media—were less than a twinkle in some visionary's eye. Now communicators have to leverage a combination of media, if not the full range, in order to achieve results. They have to plan and proceed with precision. And, as never before, they have to collaborate and rely on teamwork to create and deliver cross-media communications.

New options mean new learning curves, requirements and expectations. That's where Seybold Seminars comes in—our conferences, expositions and publications deliver essential information and education, product exhibitions and demonstrations, and access to innovative experts. Seybold Seminars is where emerging and established media tools and practices converge. Where professionals involved in strategic planning, authoring, production, management and distribution of content come to evolve their knowledge and plans.

Visit us online to learn more about our events—Seybold San Francisco September 24–28, 2001 and Seybold Seminars Boston April 22–26, 2002—and more about Seybold Publications. www.seyboldseminars.com

SEYBOLD SF
DesignBuildCommunicate 2001



The Official
Internet Provider
of Key3Media



SEYBOLD BOSTON
SEMINARS
DesignBuildCommunicate 2002

SEYBOLD
PUBLICATIONS

SEYBOLD
REPORTS.COM

Copyright © 2001 Key3Media Events, Inc., 303 Vintage Park Drive, Foster City, CA 94404-1135. All Rights Reserved. Key3Media, Seybold Seminars, Seybold Seminars Boston, Seybold San Francisco, DesignBuildCommunicate, Seybold Publications and associated design marks and logos are trademarks owned or used under license by Key3Media Events, Inc. and may be registered in the United States and other countries.

Priority Code: MABA



Mac OS X Secrets

With the release of the Unix-based Mac OS X, Mac users gained access to the wildly popular, industrial-strength Apache Web server, part of OS X's standard installation. Apache software runs almost two-thirds of the sites on the Web, and Apache Web server may be the most powerful Web server around. With it, your Mac becomes a near-perfect platform for running your site.

Gathering the Tools

Do you have something to say? If you have a broadband Internet connection, a static IP address, and permission from your ISP to run server software, your Mac can help you broadcast it to the world—you don't even need a dedicated machine. We'll show you how to configure Apache and introduce you to its most powerful tool: Server Side Includes (SSI).

But the decision to run a Web server should not be made lightly. Depending on the volume of traffic your site receives and the size of the files you serve, Apache can use huge amounts of bandwidth and disk space. And while Apple has preconfigured Apache for maximum security, running *any* server—especially in conjunction with database or script programs—may allow the bad guys to weasel their way into your files.

Turning the Key

True to the spirit of the Mac, Apple has taken Apache, with its complex Unix origins, and turned it into extraordinarily easy-to-use software. To start the server, simply go to your Mac's System Preferences application, select Sharing, and click on the Start button under Web Sharing (see "Three-Click Setup"). This will activate the Web server and allow browsers to access Web pages within several of your Mac's directories.

The root, or starting point, of your Web site is in the /Library/WebServer/Documents directory. It's accessible on the Web at <http://12.34.56.78> (where 12.34.56.78 is the IP address in your Sharing panel, under Network Identity).



Try it yourself. Launch your browser and go to the aforementioned URL. If you're logged in as an administrative user—a visit to the Users pane of System Preferences will tell you which users have administrative privileges—you can edit /Library/WebServer/Documents/index.html and see the changes when you reload the page in the browser.

Congratulations—you're now running Apache on your Mac!

Configuration Options: Pith Helmet Required

Apache's options can make your site far easier to customize and maintain. But to use these features, you must leave the friendly Aqua environment for the wilds of Unix.

To enable the features you want, first give yourself permission to edit the Apache configuration file and the directory it's stored in. This entails changing the security mode on these items. While logged in as an administrative user, start the Terminal application and type the following command at the prompt: `sudo chmod g+w /etc/httpd/httpd.conf /etc/httpd`. Then enter your system password.

Now you can access Apache's configuration file by typing its name, `/etc/httpd/httpd.conf`, into the Open dialog box inTextEdit.

Be forewarned: this file looks like nothing you've seen on a Mac before. It's more than a thousand lines of text, packed with hundreds of different commands and only the briefest instructions for their use. While there's nothing to stop you from editing these options willy-nilly, it's usually *continues*

a good idea to read the relevant section of the Apache documentation—available at <http://httpd.apache.org/docs>—before you modify anything. If you ever hopelessly mangle Apache's configuration, you can get safely back to square one by typing `cp /etc/httpd/httpd.conf.default /etc/httpd/httpd.conf` in the Terminal window to reinstall the defaults.

Hand Me the Brain, Igor

Apache has hundreds of configuration options, any of which you might find useful; we'll focus on a couple of the most powerful.

Let's begin with the Directory setting. It defines permissions for specific folders—determining what your site visitors are allowed to do within a particular directory. Each Directory setting begins with `<Directory /some/directory/name>`, is followed by a list of settings, and ends with `</Directory>`.

For our purposes, don't change the first entry, which includes Apache permissions for the root of your hard drive. Instead, skip down to the second Directory command. This entry loosens restrictions on your Web site's /Library/WebServer/Documents folder, so you can serve files when they're requested.

Although you can use several commands inside any Directory setting, the most interesting is the Options command, which is simply a line of text that controls what Apache will do with the files contained in the specified directory. If you've turned on all the options we discuss in this article, it will look like this:

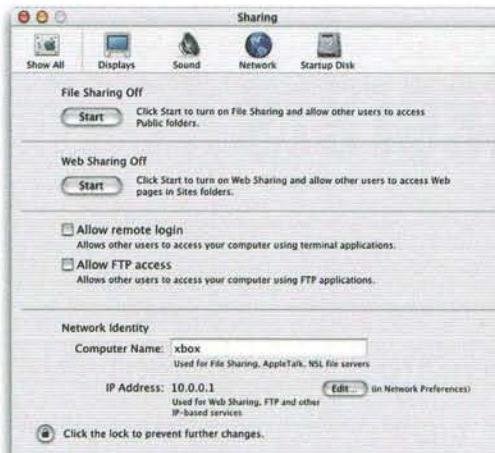
Options Indexes FollowSymLinks Includes

For example, the Indexes option lets Apache generate an automated catalog of files if no index.html file exists. If you'd rather hide the files and have your site visitors see a "Forbidden" error message, remove Indexes from the list.

Also helpful is the FollowSymLinks option, which lets Apache read files anywhere on your hard drive if they are referenced by a *symbolic link*—the Unix term for an alias—in the /Library/WebServer/Documents folder. This allows one file to appear in two places—for example, a text document can be viewed in a Web browser or downloaded via FTP. You can update one instance of the file and both will change.

SSI, Your New Best Friend

The best option of all is *Includes*. This turns on Apache's Server Side Includes (SSI) feature so you can assemble your Web pages on-the-fly. With abilities that'd cost you plenty in a commercial package such as Macromedia Dreamweaver, SSI lets you store your site's common HTML—navigation, copyrights, JavaScript, style sheets, really any-



Three-Click Setup To start Apache Web server, go to the Sharing panel within the System Preferences application and click on the Start button for Web Sharing.

thing—in a few files rather than on each page, making sitewide changes quick and easy. You can add the current date, the time the file was last modified, and a host of more-complicated functions.

To enable SSL, return to the Apache configuration file and add `Includes` to the list of Options for the /Library/WebServer/Documents directory block. Next, tell Apache what type of Web pages to scan for SSI commands. Search the configuration file for `server-parsed`, and uncomment the needed directives by removing the number sign (#) at the beginning

of two lines: `AddType text/html .shtml` and `AddHandler server-parsed .shtml`. With this configuration, only files with an `.shtml` extension will be checked for SSI commands. (If you want Apache to check every file on your site, change `.shtml` to `.html`.)

To finish reconfiguring the server, save the file. Then restart Apache by going back to the Sharing pane of the System Preferences application and turning Web Sharing off and then on again. If the program fails to restart, you may have a typo in the configuration file. Run `httpd` from Terminal to display the specific error.

The SSI commands themselves are part of your HTML files. They look like HTML comments, beginning with `<!--` and ending with `-->`. Between those sets of characters, you specify what you want the `Include` command to do. For instance, `<!--#include virtual="/common.html" -->` replaces the text of the command with the contents of your site's `/common.html` file. (And formatting does matter; watch where you put your spaces.) To add the current date to a page, use `<!--#echo var="DATE_LOCAL" -->`. And `<!--#fsize virtual="/file.html" -->` will show the size of `/file.html`.

These are just a few of the SSI commands you can put to work on your Web pages. Between SSI and the power of Apache's almost infinite configurations, you have a class-act Web server on your hands—without paying a dime extra. ■

GREG KNAUSS has been programming software for 20 years and Unix systems for 12 years. He could probably stand to get out more.

More Info: www.macworld.com

For more information about running the Apache Web server and using Server Side Includes, go to Macworld.com and type **OSXSecrets** in the Search box.

"If someone tells you

it takes only 5 minutes

to install up to 300GB

on the network,

DON'T BELIEVE IT!"

"I did it in 43.55 seconds."

Don Knisley, Network Engineer, US Air Force

Snap Servers are engineered for one purpose: file sharing. That's why Don could have a Snap Server® 2000 up and running on a LAN in 43 seconds! "If I had the choice of installing an NT server for network storage or a Snap Server, I'd pick the Snap Server," says Don. "It's fast, easy and the browser configuration tool is very intuitive." To read Don's story and virtually install a Snap Server yourself, visit www.snapappliances.com/install today.

Supports Macintosh Right Out of the Box!

For a fraction of the cost of an NT file server, a Snap Server easily adds up to 300GB to your LAN – ideal for desktop publishing, multimedia production or as a graphics/image library. According to a recent PC Data report, 4 out of 5 workgroup Network Attached Storage (NAS) servers sold are Snap Servers and they are also the most awarded NAS product on the market today. So go with the industry standard. Snap Server.



Nov. 2000



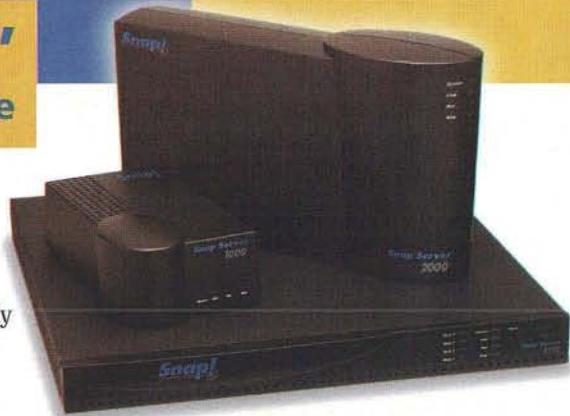
Jan. 2001



Jan. 2001



Apr. 2001



Snap!
appliances
a Quantum company

www.snapappliances.com
1.888.343.SNAP

Mac 911

Like the waistline of a sumo wrestler who's recently partaken of the All-U-Can-Eat special at Pete's Porkateria, *Mac 911* grows half again as large in this issue. To celebrate this expansion, we examine alternatives for bringing sound into new PowerBooks and other modern Macs, the necessity of firewalls, new ways to perform old tasks under Mac OS X, and database import and export options.

The Fury over Sound

Q. I recently purchased a PowerBook G4 and, to my dismay, saw that it had no audio-input port. I'd hoped to digitize my record collection and turn it into MP3 files. Is there any way I can do that with this PowerBook?

CINDY SCOTT
Davenport, California

A. If you follow Apple's marketing machinations, you know that Steve Jobs & Co. would like us to view the Macintosh as a "digital hub"—a go-between device for such delightful doodads as MP3 players, camcorders, digital cameras, and DVD players. Regrettably, some recent incarnations of this hub lack one very important spoke—audio input. For reasons best known to Apple, the audio-input port that has graced the Mac since the mid-Reagan era has been stripped from the latest models.

Many audio enthusiasts (and others keen on speech-recognition software) will gnash a bicuspid or two over what appears to be Apple's penny-wise, pound-foolish policy. But I prefer to view this as Apple's way of providing new opportunities for third-party developers. After all, had Apple compromised the *feng shui* of its Power Mac G4, PowerBook G4, and new iBook by including one more port, outfits that make alternative audio-input devices might have found themselves forced to scrimp on the Lil' Smokeys at the next company picnic.

This means, Cindy, that you can bring the scratchy soul of your old Wilson Pickett records into your new PowerBook with the help of a USB audio-input device such as



Griffin Technology's iMic (615/399-7000; www.griffintechnology.com). This \$35 thingamabob looks like a miniature yo-yo and features both an audio-input and -output port. You can use it with a microphone or with line-level devices such as your CD player or stereo receiver. And because the iMic uses Apple's native Sound Manager driver, there's no need to install additional software (though the iMic's control panel lets you adjust audio gain).

Of course, with the iMic in place, your Mac still requires some kind of software to record those ancient vinyl platters. A number of wonderful audio editors on the market will serve your needs, but I'm particularly keen on a program called Sound Studio from Felt Tip Software (\$35; 215/482-6664, www.feltip.com). Sound Studio is a simple, two-track audio editor that, unlike many inexpensive competitors, is disk-based. This means you can record much larger audio files than you could with RAM-based audio editors. (Note that although Felt Tip has released a Mac OS X version of Sound Studio, at press time, it did not support recording.) If you're looking for a multitrack recording solution, take a gander at Digidesign's free version of ProTools (800/333-2137, www.digidesign.com).

And should your ramble down life's road lead you to a career in audio and multimedia, know that there are many professional audio-input devices on the market. These products—from companies such as Roland, Mark of the Unicorn, Tascam, Digidesign, and Yamaha—let you bring high-fidelity audio files into your Mac via either its

USB or FireWire port. Audio dabblers whose Macs have PCI slots will be pleased to learn that Creative Labs (www.creativelabs.com) has brought its \$150 Sound Blaster Live audio and MIDI card to the Macintosh.

Mac OS X Startup Items

Q. How do I set up an application as a startup item under Mac OS X?

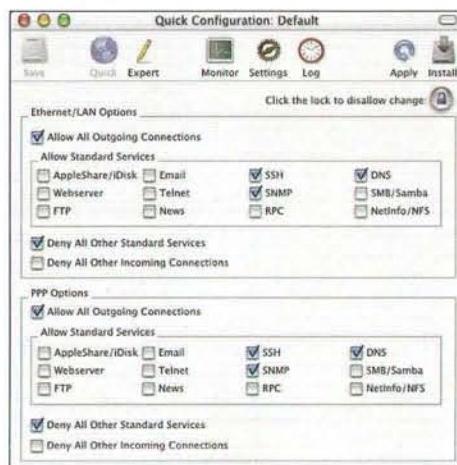
TIM WARNER

Richmond, California

A. If you've dinked around with Mac OS X, you already know that it lacks a Startup Items folder like the one found in previous versions of Mac OS. With OS X, to designate an item as one that launches at startup,

you must open the System Preferences application (which is found under the Apple menu or in the Dock) and click on the Login Preferences icon. In the window that appears, you'll see a list of applications set to launch at startup. To add others, simply click on the Add button and navigate to those applications.

Because some programs can be sluggish when launching in OS X—particularly on slower Mac models—I've put this feature to good use: I added a load of applications to my launch-at-startup list. You see, I'm far more willing to grab a cup of tea while I wait for my Mac to launch all those applications at once than to count icon bounces in the Dock when I launch them one by one.



It's Mighty Mighty Brian Hill's \$25 BrickHouse allows you to configure Mac OS X's built-in security features via this user-friendly interface.

To give you an idea of how things are done here at *Mac 911* HQ, my Login Items window contains OmniWeb, Eudora, Microsoft Word, DragThing (a wonderful file-launching utility), X-Assist (which adds an application menu to the right side of OS X's menu bar), and the System Preferences application itself. I've also configured the Classic environment to load at startup by launching Classic System Preference and selecting the Start Up Classic On Login To This Computer option in the Start And Stop pane of the Classic window.

Building a Wall

Q. I recently installed a DSL connection in my home, and I've read that if you have such an always-on link to the Internet, you should have a firewall. Is this true? If so, should I use a hardware firewall, or is a software firewall secure enough?

NATHAN WEEKS

Detroit, Michigan

A. Nathan, broadband connections such as DSL, cable modem, and satellite have brought many of us—along with the ability to download massive movie trailers for films we have no intention of viewing—concern similar to the one reflected in your question. Far be it from me to suggest that the companies that market software and hardware firewalls have fed consumers' paranoia by depicting a Web peopled with miscreants. But honestly, for most of us, the level of security provided by a firewall is not worth losing sleep over.

To begin with, most "attacks" from the Web come in the form of port probes by techno-weenies who have failed to develop more-wholesome outside interests. While such probes are annoying, they rarely lead to the takeover of your Mac by a hostile foreign government; for the most part, these weenies just want to see if they can access your computer. It's unlikely they'll return to pilfer your carefully assembled database of North American garden beetles. Secondly, Mac OS is reasonably secure—more so than, dare I say it, the many flavors of Windows. Under the pre-X versions of Mac OS, you can tighten that security by switching off the Enable File Sharing Clients To Connect Over TCP/IP option in the File Sharing control panel. With this option turned off, it's much harder for malefactors to access your Mac from across the Web. In addition, you can simply turn your Mac off at night: this will ensure that no funny business takes place during your eight hours of the dreamless.

continues

Unsolicited Advice

If you live in the hinterlands (as does your humble *Mac 911* author), you know that obtaining a broadband connection can be devilishly difficult. But don't abandon hope. Thanks to satellite technology, you can now surf the Web at near-DSL speeds. The catch is, satellite surfing, offered by outfits such as StarBand (www.starband.com) can be done only with help from a Windows PC. Or can it?

Although StarBand requires that you configure the system with a PC, once it's up and running, you can network StarBand to a collection of Macs via an AirPort Base Station and Ethernet hub. Sure, you have to lightly hack your \$600 investment (by removing the StarBand 180 modem's USB-to-Ethernet card), and this will likely void your warranty—but I've done the job and lived to tell the tale. You can read an account of my online exploits, called "Broadband in the Boonies," at www.macworld.com/2001/03/07/starband.html.

Tip of the Month

Here are some cool keyboard commands you can use in Apple's iTunes:

KEY	FUNCTION
H or ?	show help
F	toggle frame-rate display
T	toggle frame-rate capping
I	display track info
D	reset settings to default
M	select configuration mode
R	new random configuration (with caps lock key added, configuration is displayed as it changes)
C	display current configuration
Q and W	change pattern
A and S	change shape
Z and X	change color
B	show Apple logo
N	toggle between high-contrast and normal-contrast colors

ZEKE RUNYON
Oxford, Ohio

For those who'd rather be safe than sorry, I suggest Intego's NetBarrier (\$60; 305/868-7920, www.intego.com), a software-firewall application. I've installed NetBarrier on my league of Macs and then run some Internet-based port-probing utilities, which found that my network now is indeed far less visible to prying eyes. There are, however, situations in which you're better served by a hardware firewall: when you have a mixed network of PCs and Macs holding data vital to your business, for example. In such cases I recommend the \$140 EtherFast Cable/DSL Router, from Linksys (949/261-1288, www.linksys.com).

Mac OS X, on the other hand, is a different kettle of flounder. Few of us are sure how resistant Apple's new OS, with its Unix underpinnings, is to Internet attack. For this reason, I've downloaded and installed Brian Hill's \$25 shareware program BrickHouse (http://personalpages.tds.net/~brian_hill), with which you can easily configure the firewall settings built into OS X (see "It's Mighty Mighty"). (If you'd like to join discussions about Mac OS X security, you can post your two cents at Macworld.com's Operating Systems forum.)

Gaining Access

Q. I've put a lot of work into creating a Microsoft Access database containing information about my DVD collection, and I would like to use the database with my new PowerBook G4. I understand that Microsoft doesn't make

a Mac version of Access. Is there any way I can use this file with my PowerBook?

JAMIE DICKIE
London, Ontario, Canada

A. I'm pleased to hear you've put a lot of work into this DVD database—it demonstrates that you're the kind of person who's willing to part with a few ounces of good, honest sweat in the pursuit of a desired result. I bring this up, Jamie, because while there's every likelihood that you can use the data in that file on your Mac, you'll have to toil to create a Mac version that's as finely polished as the Access database you now have. Allow me to explain.

You can't just launch any old database application and then open whatever database file you want from within that application. Unlike text and graphics documents that can be opened using a variety of applications, database files are generally in a proprietary format that can't be opened natively in another database application. You can't, for example, bring that Access file over to FileMaker or AppleWorks and expect it to open with everything laid out as it was in the original file.

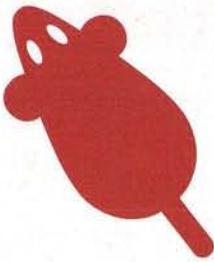
Instead, you must open Access on the PC and export your data in a form that your Macintosh database is likely to understand—as tab-delimited text or an Excel file, for example. Then construct a layout in your Macintosh database application that mimics the layout in the original file—in your case you'd include fields such as DVD title, actors, director, producer, run time, and personal rating. This Mac database application can be as rudimentary as the database component of Apple's AppleWorks (800/692-7753, www.apple.com/appleworks/) or as sophisticated as FileMaker's FileMaker Pro (408/987-7000, www.filemaker.com).

To bring data into AppleWorks, open your newly created database—with the layout matching that of your original database—choose Insert from the File menu, and then select the exported file you created with your old database. Line up the fields so that they correspond—the Best Boy and Gaffer fields should match in each database, for example—and click on OK to import your old data. With FileMaker the procedure is the same except that you choose Import Records from the File menu. m

Contributing Editor CHRISTOPHER BREEN would love to see your undocumented tip or trick in print, so send it via e-mail to mac911@macworld.com.

Share tips and discuss Mac problems with other Mac users in the Mac 911 forum (www.macworld.com/subject/mac911). Also send tips by e-mail to mac911@macworld.com. We pay \$50 for tips selected for publication in *Macworld*. All published submissions become the sole property of *Macworld*.

Shareware and freeware mentioned in *Mac 911* are available from ZDNet's Macdownload.com (www.macdownload.com).



Macworld and Mac OS X

We're closer than you think.

By the end of 2001, Macworld will test and rate all products based solely on how they perform on Mac OS X.

To signify this change, we will take the definitive icon of product quality in the Macintosh market — the Mouse Rating — and give it a fresh coat of paint. Blue paint.

When you see a Blue Mouse in Macworld magazine, Macworld.com, or on product packaging, you will know that we have tested that product's ability to work on the Mac's new operating system, and whether it made the grade. If a product does not work on Mac OS X, either in native mode or the Classic environment, it won't get a rating.

It's that simple.

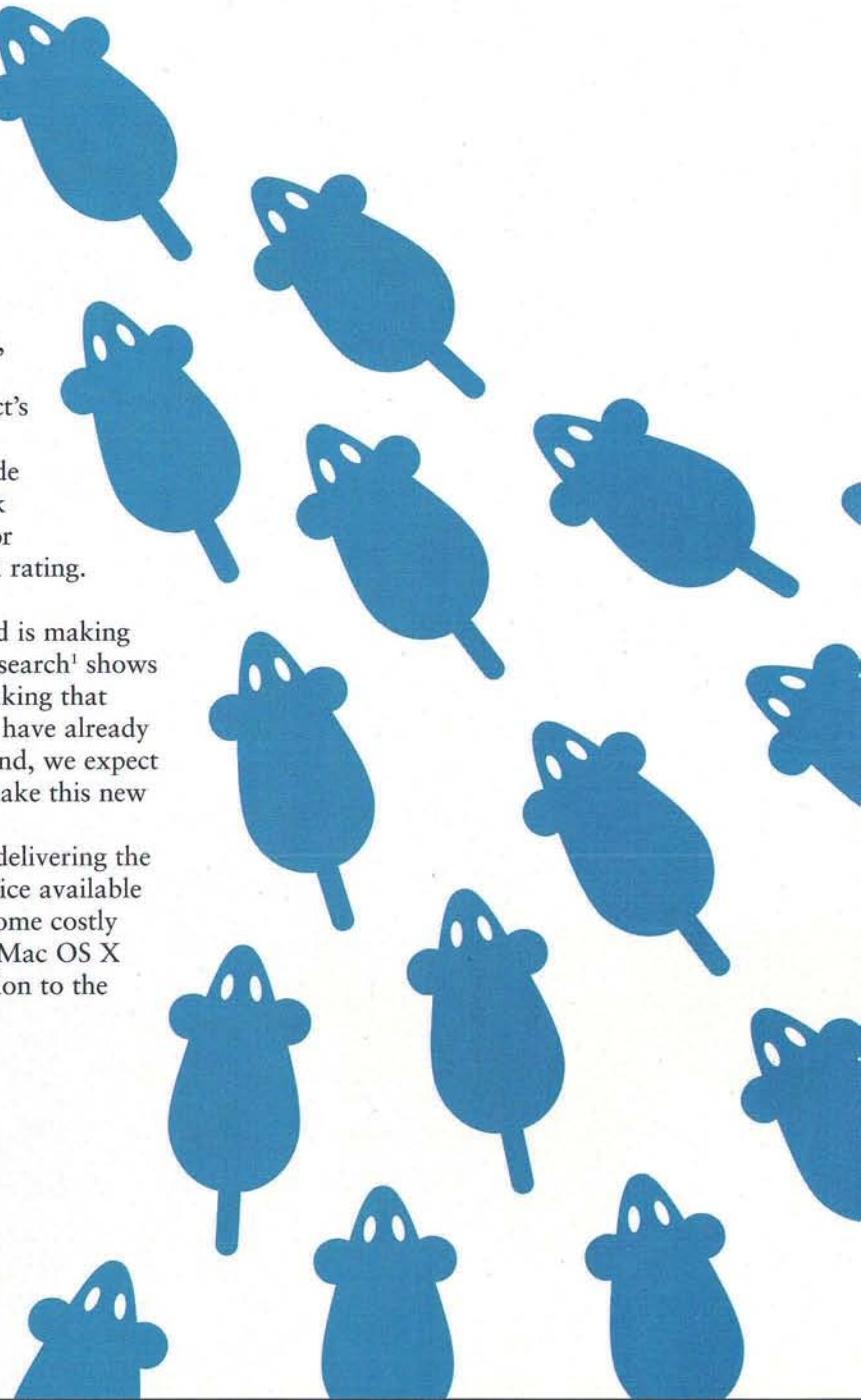
If you're wondering why Macworld is making such a bold move, it's because our research¹ shows that you, our readers, are already making that bold move: by July, 68% of you will have already purchased Mac OS X. And by year-end, we expect almost all of you to be working to make this new OS your OS.

Macworld will be there with you, delivering the most objective, lab-based buying advice available anywhere. Together, we'll save you some costly mistakes, point you toward the best Mac OS X products and help make your transition to the new OS a positive one.

The Blue Mice are coming.

And that's a very good thing.

Macworld



¹ Karlin Associates - Macworld OS X Study, 4/01

INDEX TO ADVERTISERS

Interact with the companies whose products and services are advertised in **Macworld**

ADVERTISER	INTERACT	PAGE NO.	ADVERTISER	INTERACT	PAGE NO.
AEC Software	aecsoft.com	14	MacMall/Creative Computers	800-222-2808	96-103
Alsoft	800-257-6381	38-39	MacSoft	gtstore.com	42
American Power Conversion	888-289-APCC	13	MacZones	maczone.com	104-107
Anthro	anthro.com	15	Maxell	maxell-data.com	69
Apple Computer	--	C2-1	MegaHaus	800-786-1184	112
APS Technologies	800-950-2015	110-111	MicroMat	800-829-6227	20
ATI Technologies, Inc.	ati.com	63	Microsoft	microsoft.com/mac	6-7
CD Cyclone	cdcyclone.com	41	MyFonts.com, Inc.	myfonts.com	41
CDW Computer Centers, Inc.	800-509-4239	108-109	NEC/Mitsubishi	necfp.com	37
Connectix	connectix.com	79	Nikon Electronic Imaging	nikonusa.com	4
Corel Corporation	800-722-6735	10	Roxio	roxio.com	141
Crucial Technology	crucial.com	55	Seybold	seyboldseminars.com	76
Epson America, Inc.	1-800-BUY EPSON	8-9	Snap Appliances	snapappliances.com	75
Fujitsu	fcpa.com	35	Sonnet Technologies	800-786-6260	33
Hewlett Packard	hp.com/go/digitalimaging	53	Thursby Software Systems	thursby.com	83
IDG World Expo	macworldexpo.com	94-95	VST Technologies, Inc.	vsttech.com	16
Interland, Inc.	877-472-7189	75	Xante Corporation	xante.com	2-3
J&R Computer World	800-221-8180	113			
Kensington	kensington.com	BC			

PRODUCT INDEX

PAGE NO.	ADVERTISER	GET-INFO	PAGE NO.	ADVERTISER	GET-INFO
ACCESSIONS					
FURNITURE					
15	Anthro	—			
HARDWARE					
COMPUTER SYSTEMS					
C2-1	Apple Computer	—			
96-103	MacMall/Creative Computers	132			
104-107	MacZones	72			
16	VST Technologies, Inc.	74			
HARD DISK STORAGE					
110-111	APS Technologies	56			
41	CD Cyclone	127			
55	Crucial Technology	—			
35	Fujitsu	—			
112	MegaHaus	108			
MISCELLANEOUS					
13	American Power Conversion	73			
41	CD Cyclone	127			
79	Connectix	106			
55	Crucial Technology	—			
BC	Kensington	1			
69	Maxell	24			
MONITORS/ GRAPHICS BOARDS					
63	ATI Technologies, Inc.	114			
37	NEC/Mitsubishi	20			
33	Sonnet Technologies	133			
NETWORKING PRODUCTS					
75	Snap Appliances	--			
PRINTERS					
8-9	Epson America, Inc.	—			
53	Hewlett Packard	12			
2-3	Xante Corporation	113			
SCANNERS & DIGITAL CAMERAS					
45	Nikon Electronic Imaging	59			
MAIL ORDER					
	110-111	APS Technologies	56		
	108-109	CDW Computer Centers, Inc.	2		
	113	J&R Computer World	57		
	96-103	MacMall/Creative Computers	132		
	104-107	MacZones	72		
	112	MegaHaus	108		
SERVICES					
	INTERNET PRODUCTS/SERVICES				
	75	Interland, Inc.	11		
	TRADESHOWS/CONFERENCES				
	94-95	IDG World Expo	—		
	76	Seybold	—		
SOFTWARE					
	BUSINESS/PRODUCTIVITY				
	14	AEC Software	84		
	6-7	Microsoft	—		
	41	MyFonts.com, Inc.	139		
	83	Thursby Software Systems	124		
	ENTERTAINMENT				
	42	MacSoft	30		
	GRAPHICS/DTP				
	10	Corel Corporation	79		
	MULTIMEDIA				
	141	Roxio	—		
	UTILITIES				
	38-39	Alsoft	140		
	20	MicroMat	37		

Technology for Life

Don't Miss
this summer's
ultimate
Mac event!

Macworld

Conference & Expo™

Conference Programs & Workshops

July 17-20, 2001

Exposition

July 18-20, 2001

Jacob K. Javits Convention Center
New York City

Register Online with your Priority Code: A-M2SD
www.macworldexpo.com
to take advantage of Special Savings!



Owned and Managed by
IDG
WORLD EXPO

© 2001 IDG World Expo.
All rights reserved. All other trademarks contained herein are the property of the respective owners.



*Our long-standing dedication to technology development
merits **Macworld Conference & Expo** as the ultimate venue
for all levels of Mac users, professionals, enthusiasts and
the Mac-curious to gather and experience the excellence
of Mac technology!*

Save these Dates!

January 8-11, 2002



Moscone Convention Center
San Francisco, CA

July 16-19, 2002

Jacob K. Javits Convention Center
New York City, NY

For information on our world-class exposition,
and comprehensive conference programs,

visit **www.macworldexpo.com**

Flagship Sponsors

Macworld

Macworld.com

MacCentral.com

NEW—Faster NOW Shipping with

The Highest Resolution 12.1" TFT XGA Display!

Designed to fit your life!

The iBook™ weighs just 4.9 pounds, almost 2 pounds lighter than before, and is appreciably smaller—just 11.2 inches wide, 9.1 inches deep and 1.35 inches thick.

Add fun-filled dimensions to your MP3s, CDs, digital camera, DV camcorder and personal digital assistant with its iMovie™, iTunes and iTools software.

Packs a tremendous punch!

The brilliant TFT XGA active-matrix display and razor-sharp 1024 x 768 pixel resolution allows you to view your movies, digital images and 3D graphics like never before!

Built for speed and power!

- 500MHz PPC G3 processor
- 256K on-chip L2 cache
- 64MB or 128MB of PC100 SDRAM; supports up to 640MB
- ATI RAGE Mobility 128 graphics controller with 8MB SDRAM
- 10GB Ultra ATA hard drive
- 10/100BT ready for DSL/cable modem
- 24X CD-ROM, 6X DVD-ROM or new DVD-ROM/CD-RW combo drive

- 56K modem
- Built-in 12.1" (diagonal) TFT XGA active-matrix display
- Supports millions of colors at 1024 x 768
- Support for AirPort™ wireless networking (separate purchase)
- AV port (requires optional Apple AV cable)
- Up to 5 hours of battery life on a single charge ■ FireWire® port
- Software: Mac OS 9.1, QuickTime, iMovie 2, iTunes, AppleWorks, Microsoft Internet Explorer, Microsoft Outlook Express, Netscape Communicator, Palm Desktop, FAXstf, Cro-Mag Rally, Bugdom, Nanosaur and Acrobat Reader

TContains electronic documentation. Most applications are preinstalled. Backup copy of software provided on CD-ROM. Mac OS X software may not be pre-installed on CPU. In this case, Mac OS X software will be provided separately in promotional packaging with your CPU order.

#959645	Apple iBook Portable Adapter	\$69
#959646	Apple iBook Rechargeable Battery	\$129
#959647	Apple iBook AV Cable	\$19

128MB RAM FREE!

with iBook
purchase

AirPort Station/Card

Fast and easy wireless Internet access!

AirPort Card #57369

only \$99!



Authorized Reseller

AirPort Station #57373

only \$299!



iBook Super Bundle!



all for only
\$99.99!

With PowerBook or iBook purchase #959246
Includes: Top Loading Leather NotePac, USB Cable
Notebook Cable Lock, APC Notebook Surge Arrest.

Nikon



CoolPix 950 Digital Camera

• 2.11 Megapixel • 3X Zoom
#43893

only \$549.99!

Acrobat 5.0

#957596



upg. only

\$87.99!

Adobe Acrobat 5.0



MacMall Super Bundle!

#957303 With CPU purchase.

Epson Stylus Color 777 Printer, Astranet E3420
Internet Scanner, 4-Port USB Hub, Tomb Raider II,
6' USB Device Cable



\$149.99!

New Apple® iBooks

1-800-217-9492 www.macmall.com

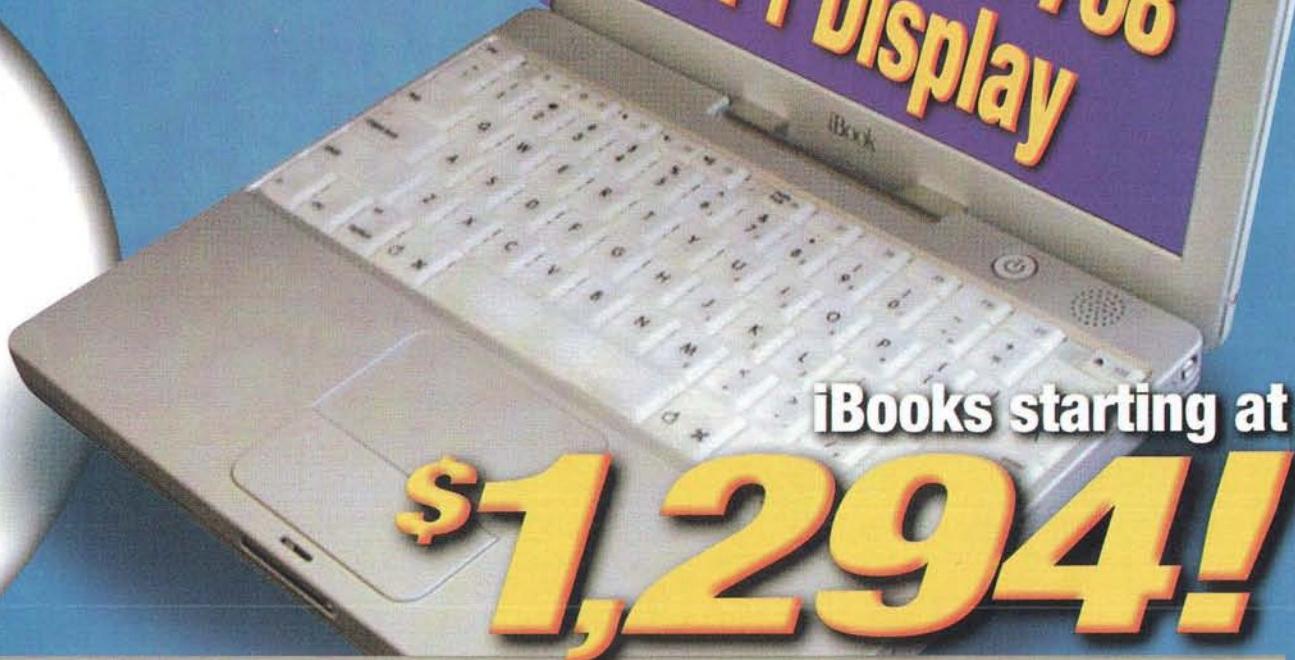
iBooks! Mac OS X!



Authorized Reseller

Every Apple iBook comes AirPort-ready with two built-in antennas and a slot for the optional AirPort Card. Airport wireless technology provides an affordable way to bring the Internet to your home or classroom or office —without cables, additional phone lines or complicated networking hardware.

500MHz!
4.9lbs! 1.3" Thick!
12.1" 1024 x 768
TFT Display



iBooks starting at

\$1,294!

Order	MHz	RAM	FREE RAM	TOTAL RAM	Hard Drive	56K Modem	Drive	USB Ports	FireWire Port	iMovie 2	iTunes	Price!	or as low as
#959626	500MHz G3	64MB	128MB*	192MB	10GB	Yes	CD-ROM	2	1	Yes	Yes	\$1,294*	\$37/mo
#959627	500MHz G3	128MB	128MB*	256MB	10GB	Yes	DVD-ROM	2	1	Yes	Yes	\$1,494*	\$42/mo
#959633	500MHz G3	128MB	128MB*	256MB	10GB	Yes	DVD/CD-RW	2	1	Yes	Yes	\$1,794*	\$50/mo

*Professional installation fee of \$30 required for free RAM offer. Hurry, MacMall RAM promotion ends 7/23/01.

Own this iBook 500MHz for as low as \$37/month with the **New MacMall EZ Payment Plan!**

Order Any Time! Open 24 Hours! Order Today by 10 p.m. EST—Get it Tomorrow by 10:30 a.m.!

Call for Your Best Price! We'll Beat Any Price!

On any Mac computer. Call for details.

AOL Keyword: MacMall

Mention Your Priority Code: #ZMWD183

Titanium PowerB NOW Includes Mac

Redefined Portability

All-Inclusive Big-Screen Theater, Movie Studio and Music Library!

The Titanium PowerBook G4™ redefines portable computing.

With a titanium exterior, one of the lightest and most durable metals, the PowerBook G4 is only 1 inch thin and weighs just 5.3 pounds. Yet it offers powerful features, including notebook firsts such as a slot loading DVD-ROM drive and a stunning 15.2 inch display. The widescreen format display is capable of 1152 x 768 pixel resolution in millions of colors.

Revolutionary design

- 1 inch thin and only 5.3 pounds
- Enclosed in a durable titanium case
- 15.2 inch widescreen active-matrix display with 1152 x 768 pixel resolution in millions of colors
- Slot loading DVD-ROM drive for playback of DVD-Video, DVD-ROM, DVD-RAM and CD-ROM

Supercomputer performance

- Up to 500MHz PowerPC™ G4 processor with Velocity Engine™
- Up to 5 hours of run time
- 128MB or 256MB of PC100 SDRAM
- Easy expandability through FireWire®, USB and PC Card slot

Amazing power!

Using a PowerPC G4 processor with the Velocity Engine and speeds of up to 500MHz, the PowerBook G4 crunches through digital video and renders huge Photoshop files faster than ever.

It has the kind of horsepower you've previously associated only with systems like the Power Mac G4. That's exactly the advantage you get with the PowerBook G4.

Mac OS X software may not be pre-installed on CPU. In this case, Mac OS X software will be provided separately in promotional packaging with your CPU order.

#956072 Additional PowerBook G4 Battery \$129

#956071 Additional PowerBook G4 AC Adapter \$69

256MB RAM FREE!

**with purchase
of Titanium
PowerBook G4!**

PowerBook Super Bundle!



all for only
\$99.99!

with
PowerBook
or iBook
purchase
#959246

Includes: Top Loading NotePac, USB Cable, Notebook Cable Lock, APC Notebook Surge Arrest.

Mac Upgrade Bundle!

Turn your old Power Mac into a Power Mac G3 complete with USB and FireWire ports!
PowerLogix
Call for details #959055 only \$199.99!

only \$199.99!

Microsoft Office 2001 Upgrade

only
\$258.99!
#843561

only
\$258.99!

AirPort™ Station/Card

AirPort lets you use your computer for work, play, sending and receiving e-mail and getting on the Internet—wirelessly. And it's easy!
AirPort Card #57369
only \$99!
AirPort Station #57373
only \$299!

Mac OS X ORDER NOW!
only \$119.99!
#956214

Adobe Acrobat 5.0 Upgrade
#957596
only \$87.99!

Apple® Titanium PowerBook G4

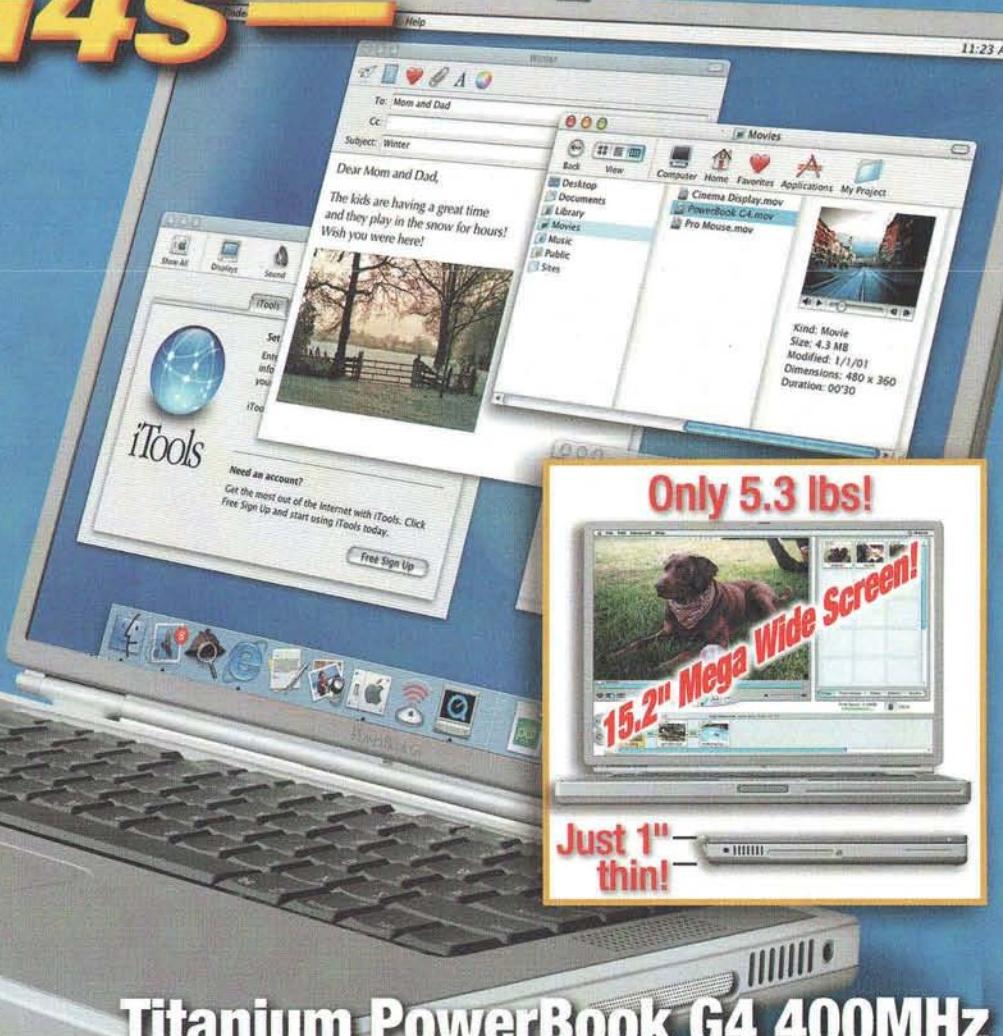
1-800-217-9492 www.macmall.com

ook G4s— OS X!

**Only 1" thin!
Just 5.3lbs!
15.2" screen!**



Authorized Reseller



Titanium PowerBook G4 400MHz

only \$2,594!

Order	MHz	RAM	FREE RAM	TOTAL RAM	Hard Drive	DVD Drive	56K Modem	USB Ports	FireWire Ports	iMovie 2	iTunes	Mac OS 9.1	or as Price!	low as
#956566	400	128MB	256MB*	384MB	10GB	Yes	56K	Two	One	Yes	Yes	Yes	\$2,594	\$73/mo**
#956567	500	256MB	256MB*	512MB	20GB	Yes	56K	Two	One	Yes	Yes	Yes	\$3,494	\$98/mo**

*Professional installation fee of \$30 required for free RAM offer. Hurry! MacMail RAM promotion ends 7/23/01.

"Own this Titanium PowerBook G4 for as low as \$73/month with the **New MacMail EZ Payment Plan!** Call for details on the new MacMail EZ Payment Plan.

Order Any Time! Open 24 Hours! Order Today by 10 p.m. EST—Get it Tomorrow by 10:30 a.m.!

Call for Your Best Price! We'll Beat Any Price!

On any Mac computer. Call for details.

AOL Keyword: MacMail

Mention Your Priority Code: #ZMWD183

NEW iMacs with NOW Includes Mac

Work and Play Faster with New Speeds!

iMac™ 400MHz G3 Processor

Do more—right out of the box!

- 400MHz PowerPC™ G3 processor
- 64MB SDRAM; supports up to 1GB
- 10GB HD ■ 10/100BT ■ CD-ROM
- RAGE 128 Pro ■ 15" display
- Apple Pro Optical Mouse and Keyboard
- 2 FireWire® and 2 USB ports
- 56K ■ Harmon/Kardon Odyssey audio system
- Standard VGA output (15-pin mini D-Sub); support for video mirroring

iMac 500MHz G3 Processor

- 500MHz PowerPC G3 processor
- 64MB SDRAM; supports up to 1GB
- 20GB HD ■ 10/100BT
- CD-RW ■ 15" display
- 16MB RAGE 128 Ultra
- 2 FireWire and 2 USB ports
- 56K ■ Harmon/Kardon Odyssey audio system
- Standard VGA output (15-pin mini D-Sub); support for video mirroring

iMac 600MHz G3 Processor

- 600MHz PowerPC G3 processor
- 128MB SDRAM; supports up to 1GB
- 40GB HD ■ 10/100BT
- 16MB RAGE 128 Ultra
- 15" display ■ CD-RW
- Harmon/Kardon Odyssey audio system
- 2 FireWire and 2 USB ports
- Standard VGA output (15-pin mini D-Sub); support for video mirroring

All new iMacs include[†]:

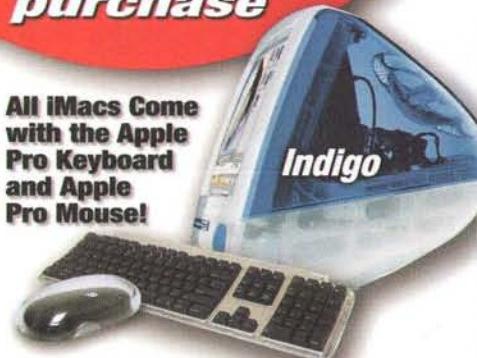
- Mac® OS X (includes Mac 9.1)
- AppleWorks 6 ■ FAXstf
- iTunes ■ QuickTime 4 ■ iMovie™ 2
- Palm Desktop ■ Bugdom ■ Nanosaur
- Cro-Mag Rally ■ Quicken Deluxe 2001
- Microsoft Outlook Express and Internet Explorer ■ Netscape Communicator
- 30 days free EarthLink Internet service

†Most applications are preinstalled, though some may require downloads. Product contains electronic documentation. Backup software is provided on CD-ROM. Mac OS X software may not be pre-installed on CPU. In this case, Mac OS X software will be provided separately in promotional packaging with your CPU order.

up to
**128MB
RAM
FREE!**

**with iMac
purchase**

**All iMacs Come
with the Apple
Pro Keyboard
and Apple
Pro Mouse!**



HP DeskJet 842c Color Printer!

only \$89.99!

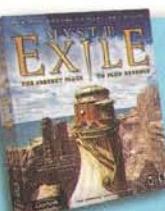
Myst III Exile

#959802

only

\$44.94!

Ubi Soft



Diamond Rio 800 128MB MP3 Player

#980667

DIAMOND

only \$249.99!



Corel Draw 8

#58775



COREL
DRAW 8
The Choice of Professionals

COREL

only \$99.99!

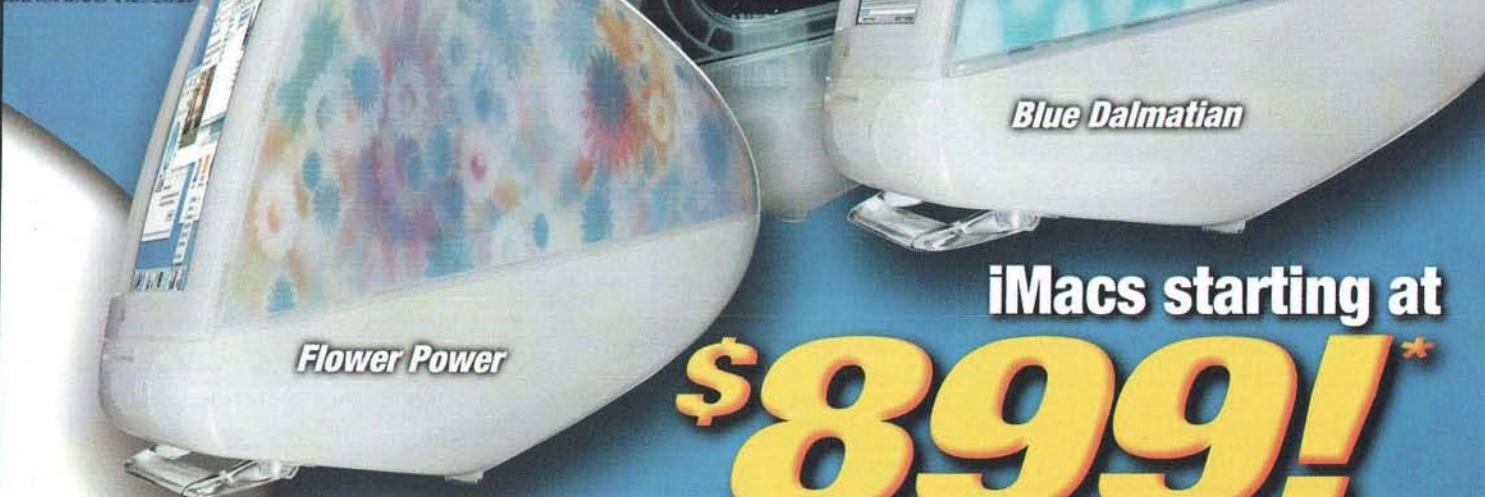
with CPU purchase

*Price reflects \$30 HP mail-in rebate.
Price before rebate is \$119.99. Offer expires 9/22/01.

CD-RW Option! OS X!



Authorized Reseller



Blue Dalmatian

Flower Power

iMacs starting at

\$899!*



Indigo (#957490)

MHz	400
RAM	64MB
FREE RAM	64MB
TOTAL RAM	128MB
Hard Drive	10GB
CD-ROM	YES
56K Modem	YES
USB Ports	2
FireWire Ports	2
iTunes and iMovie 2	YES

\$899!*

or as low as \$26/month with the

New MacMall EZ Payment Plan! Call for details.

*MacMall RAM promotion ends 7/23/01. Price shown above does not include a required \$30 professional RAM installation fee.



Flower Power (#957493),

MHz	500
RAM	64MB
FREE RAM	128MB
TOTAL RAM	192MB
Hard Drive	20GB
CD-RW	YES
56K Modem	YES
USB/FireWire Ports	2
iTunes and iMovie 2	YES

\$1,194!*

or as low as \$34/month with the

New MacMall EZ Payment Plan! Call for details.

Flower Power (#957496),

MHz	600
RAM	128MB
FREE RAM	128MB
TOTAL RAM	256MB
Hard Drive	40GB
CD-RW	YES
56K Modem	YES
USB/FireWire Ports	2
iTunes and iMovie 2	YES

\$1,494!*

or as low as \$42/month with the

New MacMall EZ Payment Plan! Call for details.

Order Any Time! Open 24 Hours! Order Today by 10 p.m. EST—Get it Tomorrow by 10:30 a.m.!

Call for Your Best Price! We'll Beat Any Price!

On any Mac computer. Call for details.

AOL Keyword: MacMall

Mention Your Priority Code: #ZMWD183

Call for your copy of the latest
Mac Software & Accessories Buyers Guide!

Featuring all the hot new releases from

Macworld 2001, San Francisco.

Call 1-800-217-9492



Mac OS X ORDER NOW! #956214

\$119⁹⁹!
only \$119⁹⁹!

Visit Our Site!

- ✓ Featuring all the new products from Apple!

And So Much More!

- ✓ Fastest overnight delivery!
- ✓ 100% Apple Gold Certified, best trained sales staff!
- ✓ \$2 billion in inventory—over 125,000 products!
- ✓ Custom configuration—we will build your CPU to your specifications!

MacMall EZ Payment Plan!

NEW! Payment terms up to 48 months!

Now you can have low fixed monthly payments on consumer purchases of \$750 or more with the new MacMall EZ Payment Plan. It's fast and easy to apply for, and there are no application fees or prepayment fees. Call your Account Manager today, or apply online! You can complete your purchase in just minutes and have your order tomorrow!

Financing available on approved credit arranged through MBNA America Bank, N.A. Payment does not include shipping charges and sales taxes if applicable. Estimated monthly payment is based on approximate 48-month term at an Annual Percentage Rate (APR) of 14.99%. Your APR may be higher. There are no transaction fees for MacMall purchases billed directly to your account. There is a transaction fee of 3% of the U.S. Dollar amount of each advance check you write (\$5 min/\$30 max), but there is no obligation to use advance checks.

Hot New Software!

Mac OS 9.1
Make your Mac more powerful and Internet-friendly than ever before!
Improves your audio, video and graphics performance and more!

- Sherlock 2 • iTools
- Voiceprint Password

\$88⁹⁹

#956150



Virtual PC with Windows 98

Run multiple operating systems concurrently on a single PC!

- Transfer files from shared Windows workstations
- Print to Windows PostScript printers
- Access file servers

\$189⁹⁹

#955081

Aladdin Stuffit Deluxe 6.0

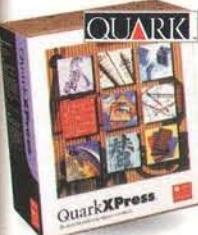
Compresses and expands faster than any previous version. Your Stuffit files can be accessed by any Mac or PC, hassle-free!

\$24⁹⁹

#953839

After \$50 mfr. mail-in upgrade rebate.

Price before rebate is \$74.89. Call for details.



Quark XPress 4.1

The leading layout and design software for publishers worldwide!

- Layout, design, and graphics management
- Printing and production
- Text processing

\$764⁹⁹

#55401

TechTool Pro 3.0

No other program tests as many different aspects of your system as thoroughly as TechTool Pro!

- Detects virus problems and software conflicts
- New drive repair routines
- Improved recovery system
- Automatic update service

\$88⁹⁹

#30489



Dreamweaver 4 Fireworks 4 Studio

Create, edit and animate bitmap and vector Web graphics and add advanced interactivity and pop-up menus in Macromedia Fireworks' robust environment.

\$184⁹⁹

#953745

#953738 Dreamweaver 4 Fireworks 4 Studio Full \$398⁹⁹



NEW! Adobe Acrobat 5.0

The best way to share documents!

- Create documents anyone can open
- Repurpose PDF content
- Digitally sign documents

upgrade only

\$87⁹⁹

#957596

#957605 Adobe Acrobat 5.0 Full Version \$218⁹⁹

1 Adobe Premiere 6.0

The essential tool for digital video editing!

Adobe Premiere 6.0 allows you to create video for the Web, DVD, CD-ROM and videotape!

upgrade only

\$138⁹⁹

#955005

#955002 Adobe Premiere 6.0 Full \$548⁹⁹

Illustrator 9.0

The standard in vector graphics creation software just got better!

- Output to SVG, GIF, JPEG and PNG

upgrade for only

\$138⁹⁹

#58042

#58038 Illustrator 9.0 Full Version \$388⁹⁹

Final Cut Pro 2.0

Meets the needs of video editors!

- Real-time editing architecture
- Support for virtually all professional video formats

Upgrade only

\$249

#958182 Final Cut Pro 2.0 full version \$995

Norton SystemWorks

Includes: Norton Utilities for Macintosh, Norton AntiVirus for Macintosh, Spring Cleaning from Aladdin and Retrospect Express Backup from Dantz!

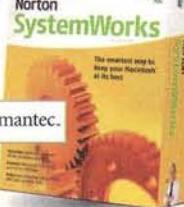
as low as

\$69⁹⁹

#852776

After \$50 mfr. mail-in upgrade rebate.

Price before rebate is \$119.99.



Toast 5 Titanium

CD-Recording software!

Lets you make your own music, data, and video CDs! Turn your digital photos into video slide shows and burn them or your iMovies onto VideoCDs that are playable on DVD players and your TV!

only

\$89⁹⁹

#975774

Great Deals on All Peripherals!

**Stylus® Color
8" Printer**

- 12ppm black; 9ppm color
- 2880 x 720dpi
- Parallel and USB interface

only \$179 #955839



EPSON
New!

**Stylus® Color
777 Printer**

- 2880 x 720dpi
- 8ppm black; 3ppm color
- AcuPhoto Halftoning

only \$89 #952038

EPSON

**HP DeskJet
1220Cse Printer**

- Up to 13" x 19"
- 11ppm black; 9.5ppm color
- 2400 x 1200dpi resolution

only \$499 #56424

HP
INKJET

**Dazzle
Hollywood
1394 DV**

- Convert analog video to DV and vice versa
- Monitor video from a TV
- Convert video without a computer

only \$259 #944700

DAZZLE
MULTIMEDIA


Belkin 4 Port USB Hub

Provides you with instant expandability that's as simple as plugging in a USB connector!



only \$29.99
#54763

WACOM
**intuos 6" x 8"
Special Edition
Tablet**

Includes pressure sensitive pen and eraser, cordless mouse & transparent overlay for tracing!

USB

only \$299 #950761

USB

Universal Serial Bus

**Que! 12x10x32
FireWire CD-RW
Drive**

Features 2MB RAM buffer and one year warranty.



only \$279 #951639

FireWire

**Palm m500
Organizer**

Includes mobile connectivity software!

- 8MB memory
- Dual expansion
- USB HotSync

only \$399
#957983

**Olympus D-490
Digital Camera**


OLYMPUS

Digital Camera

- Includes 8MB SmartMedia
- 2.11 Megapixel
- 1280 x 960 res.
- 3X optical zoom
- QuickTime® movie mode

only \$449.99
#951256

USB

Universal Serial Bus

**Coolpix 995
Digital Camera**

- 3.34 Megapixel CCD
- 4X Nikkor zoom lens
- 2048 x 1536 resolution

only \$899.99
#959506

Nikon

USB

Universal Serial Bus

**Peerless 120GB
FireWire Bundle!**

i
iomega

- Peerless Base Station with FireWire interface
- 10GB disk

only \$343.99
#980647

Bundle includes: MGi PhotoSuite, iomega QuickSync, Aladdin Shrinkwrap, MusicMatch Jukebox software.



New!

Peerless

**Perfection
1240U Scanner**

EPSON

USB

Universal Serial Bus

- 1200 x 2400dpi
- 42-bit color
- USB connectivity
- Three-button interface

only \$179.99
#953564

PERFECTION

1240U

Scanner

FireWire

Universal Serial Bus

USB

Universal Serial Bus

Price after \$50 instant MacMall rebate.
Price before rebate is \$199.99.

Promotional offers cannot be combined. Please check individual promotion details for ending date and other restrictions or call your Account Executive for more information. Prices, specifications and promotional offers are subject to change without notice. Limited to stock on hand. While we do our best to check errors, mistakes may occur—call to verify pricing.

Order Any Time! Open 24 Hours! Order Today by 10 p.m. EST—Get it Tomorrow by 10:30 a.m.!

Call for Your Best Price! We'll Beat Any Price!

On any Mac computer. Call for details.

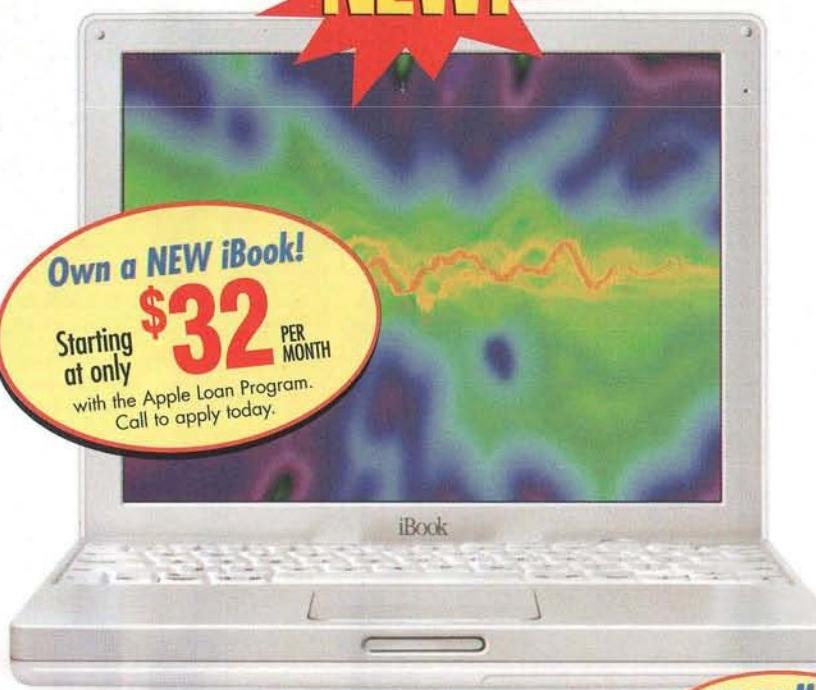
AOL Keyword: MacMall

Mention Your Priority Code: #ZMWD183

The iBook:

Lighter. Faster. Smarter.

NEW!



Value-priced with high-end power and style.

Smaller in size and price only. Weighing only 4.9 pounds and measuring only 1.3" thin, the sleek, ice-white iBook is small enough and powerful enough to fit any mobile lifestyle. Yet it comes packed with both a feature set and a price unrivaled by any Wintel notebook. And with Connectix Virtual PC™ (sold separately), you can even run Windows software, if you need to.

The redesigned iBook inspires love at first glance. But its seemingly delicate beauty masks strong bones: a sturdy magnesium frame and polycarbonate plastic shell. And as beauty without brains would prove useless, the new iBook features a 500MHz G3 processor and CD-ROM, DVD-ROM or CD-RW/DVD optical drive.

With an iBook equipped with a CD-RW/DVD combo drive, you can burn your own CDs anywhere, any time, without sacrificing the ability to kick back and watch the latest Hollywood blockbuster. You can share your MP3 music collection in your dorm or burn extra copies of your presentation on CD right there in the conference room. Or you can just chill out under a shady tree, watching your favorite DVD scene and listening to the director's commentary.

Your new iBook comes complete with a super suite of software. It's all entertainment and all business, all in one very stylish package.

Apple® iBook™ G3/500

"The new iBook is simply the best consumer laptop on the market today.... Dell, Compaq and the others should be ashamed they haven't come close to building a laptop this cool and [at] this price. **"**

— David Coursey, writer for ZDNet AnchorDesk,
as quoted on Apple's website.

Starting At Only

\$1294⁹⁸



	G3/500	G3/500	G3/500
Processor	500MHz	500MHz	500MHz
Hard Drive	10GB	10GB	10GB
RAM	64MB	128MB	128MB
On-chip Cache	256K	256K	256K
Optical Drive	CD	DVD	CD-RW/DVD
FireWire/USB Ports	1/2	1/2	1/2
AirPort Ready	Yes	Yes	Yes
Ethernet	10/100BT	10/100BT	10/100BT
Modem	56K	56K	56K
iMovie 2	Yes	Yes	Yes
iTunes	Yes	Yes	Yes



\$1294⁹⁸ **\$1494⁹⁸** **\$1794⁹⁸**

#130737

#130738

#139207

Business Leasing Available: Call 1-800-248-0800 for details.



Credit cards are not charged until the order is shipped. Most products ship the same day (barring system failure, etc.). Shipping options include Ground, 2nd Day and Overnight delivery. Freight is based on average product weight. Handling extra. Insurance available. Special orders may require special shipping and handling charges. Call for international shipping rates. Prices and product availability subject to change without notice. Specials and promotions may be limited to stock on hand. Not responsible for typographical errors. All products sold by Zones, Inc. are third party products and are subject to the warranties & representations of the applicable manufacturers, including but not limited to Y2K compliance of product sold. ©2001 Zones, Inc. All rights reserved. Unauthorized duplication is a violation of applicable laws. Apple, the Apple logo, Macintosh and PowerBook are registered trademarks of the Apple Computer, Inc.

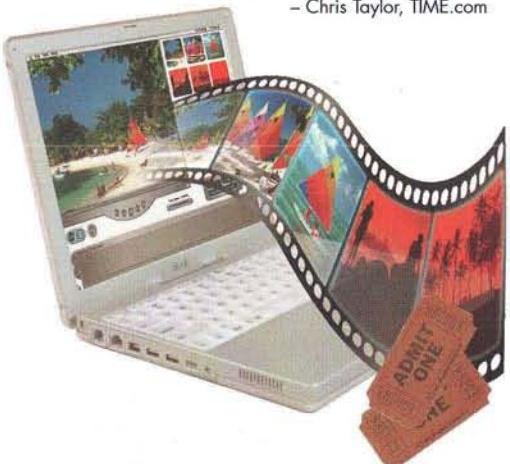
a Photo Studio to Go



iMovie 2

"Film-editing software so intuitive that it doesn't have a manual or need one."

- Chris Taylor, TIME.com



The old way...



Shoot

You'd wait for sales on film so you could stock up on extra film. Then using the good old standby, the 35mm camera, you'd dutifully fumble with loading the roll. And you had to be careful not to accidentally load a roll you already exposed – double exposures are definitely not double the fun.

Develop & Wait

You'd look for coupons and wait for sales on film developing. Then you'd drop off your film at your local drugstore and wait, all the while hoping most of the pictures would turn out all right. No instant gratification here, even with a one-hour photo center.



Store

You put your photos into an album, so people could sit next to you and wait patiently as you flip through it. You turned some into 35mm slides and put your friends to sleep with a barrage of static images. The rest went into shoe boxes or junk drawers. Not exactly the best way to share and store your memories.

iMovie 2

makes sharing your dream vacation with family and friends a reality that's almost as much fun as the vacation itself – or maybe even more fun. Capture and share your vacation differently this year, with iMovie and your Apple personal computer. We're Mac Zone, your superstore for all things Mac. Enjoy the summer with us.



Canon

PowerShot S300 Digital ELPH

Fun, sophisticated and super-tiny

- 3X optical/7.5X digital zoom
- 2.11 megapixel
- USB connection
- Only 8.5 ounces

#136931 \$599⁹⁹

Canon

ZR25 MC Digital Camcorder

Sharp video & photos with flexible storage

- 2.5" color swivel screen
- 10X optical/200X digital zoom
- Digital Photo Mode
- Multimedia & memory card storage

#134174 \$799⁹⁹ Call

Corporate bids welcome!
Fax to 1-425-430-3420

A NASDAQ® COMPANY Ticker Symbol: ZONS

Source Code
MW081

Order by Phone
I.800.436.0606

Order Online Today

www.maczone.com

www.macworld.com August 2001 105

Vacation Differently!

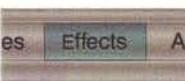
Imagine making a slideshow or movie of your vacation that springs to life with music, special effects and narration. No more passing around a box full of photos or yawns as you blip through 35mm slides using the old slide projector. Instead, gather friends and family together and watch your vacation unfold on your TV. With iMovie 2 (free with all Macs, including PowerBooks), your digital camcorder and the FireWire port on your new Mac, it's a lot easier than you might think. So retire the slide projector, and save the boxes for gifts and souvenirs. Order your new Macintosh with FREE iMovie 2 today!

Shoot like a pro with a digital camera or camcorder from Mac Zone. Most of the digital camcorders we carry have optical and digital zoom, so you can get closer to your subject without changing your position and losing the moment. Plus, most feature picture stabilization to eliminate or reduce camera shake. Mac Zone carries cameras that fit your budget and your pocket; come Internet-ready with MP3, QuickTime and MPEG support; and let you preview your pictures in direct sun.

Call us or visit our website at maczone.com to find out more about our wide selection of digital cameras and camcorders, and start your vacation right.



The **NEW** way...



Shoot

Discover how fun it is to make entertaining desktop movies out of vacation video you capture on your own digital camcorder. Just pop in a tape, shoot footage of your trip and get ready for a very different way of preserving those grand vacation memories.

Edit

Select the clips of all the action or items of interest you caught on video – whether it's the fun at the beach, wake-jumping behind the ski boat or your parents meeting their grandchild for the first time. Edit out the rest, deleting all the nothing-in-particulars.

Enhance

Split audio tracks between music and narration. Add sepia tones for a nostalgic effect. Introduce each scene with a snazzy title and transition. All with the Mac's famous drag-and-drop ease.

Enjoy & Share

For the highest picture quality, record your video to tape for easy, anytime viewing. Or post it on your own home page with a free iTools account, for family around the world to see.

Robust Tools



Own a
NEW Power Mac!
\$41
Starting at only
PER MONTH
with the Apple Loan Program.
Call to apply today.

Starting At Only
\$1694⁹⁸



22"
mega-wide

Apple® Displays

Panoramic DVD viewing

Apple Cinema Display

22" Diagonal TFT LCD
#124925 WAS \$399⁹⁸ NOW \$249⁹⁸



Upgrade
Your
Power
Mac!

Power Mac G4 Memory

#674339	64MB	\$24.99
#123842	128MB	\$39.99
#715574	256MB	\$69.99

Prices subject to change.



Power Mac G4 \$249⁹⁹
Protection Plan #722601



Razor-sharp images in
minimal desktop space

Apple Studio 17 Display

17" Diagonal
Viewable Flat Panel
#139208 \$999



Truly desk-
saving design

Apple Studio 15 Display

15" Diagonal TFT LCD
#124924 \$599

Apple® Power Mac™ G4

- Up to 38% faster than the previous G4
- CD-RW drive or revolutionary combination DVD-R/CD-RW SuperDrive on 733MHz model
- AGP 4X graphics slot – twice as fast as in the previous G4
- Expansion galore – four high-performance 64-bit PCI slots
- Up to 256K L2 and 1MB L3 cache

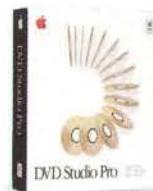
Settling for less can cost a lot. If you're still using a beige Power Mac G3 to render images in Photoshop, design 3D graphics or batch-process digital video, you're potentially losing a lot of time and money.

"I'm getting results [with the Power Mac G4] that point to an increase of two to 20 times the performance for Photoshop tasks.... Simply put, the more jobs you can do in a day, the more money you can make." – Chris Cox, hardware guru at Adobe, as quoted on Apple's website

Open up new opportunities without keeping your budget up in the air.

"For the cost of outsourcing one video to an independent company, we've now got an office full of great gear that we can use to produce as many videos as we want. Essentially, I can do video for any department without anyone worrying about juggling their budget to make it happen."

– David Henry, A/V Administrator
for the The Sacramento Bee,
as quoted on Apple's website



Professional
DVD editing
and creation
**Apple DVD
Studio Pro**
\$999⁹⁹
#791074

	G4	466	533	G4 Dual	733	733
Processor	466MHz	533MHz	533MHz	733MHz	733MHz	733MHz
Hard Drive	30GB	40GB	40GB	60GB	60GB	60GB
RAM	128MB	128MB	128MB	256MB	256MB	256MB
Optical Drive	CD-RW	CD-RW	CD-RW	CD-RW	SuperDrive	SuperDrive
Graphics Card	ATI RAGE Pro 128/16MB	NVIDIA GeForce2 MX/32MB	NVIDIA GeForce2 MX/32MB	NVIDIA GeForce2 MX/32MB	NVIDIA GeForce2 MX/32MB	NVIDIA GeForce2 MX/32MB
FireWire/ USB	2 Ports ea.	2 Ports ea.	2 Ports ea.	2 Ports ea.	2 Ports ea.	2 Ports ea.
Ethernet	Gigabit	Gigabit	Gigabit	Gigabit	Gigabit	Gigabit
Cache	1MB L2	1MB L2	1MB L2	256L2 1MB L3	256L2 1MB L3	256L2 1MB L3

\$1694⁹⁸ #130736 **\$2194⁹⁸** #130735 **\$2494⁹⁸** #130798 **\$2994⁹⁸** #130732 **\$3494⁹⁸** #130733

Credit cards are not charged until the order is shipped. Most products ship the same day (barring system failure, etc.). Shipping options include Ground, 2nd Day and Overnight delivery. Freight is based on average product weight. Handling extra. Insurance available. Special orders may require special shipping and handling charges. Call for international shipping rates. Prices and product availability subject to change without notice. Specials and promotions may be limited to stock on hand. Not responsible for typographical errors. All products sold by Zones, Inc. are third party products and are subject to the warranties & representations of the applicable manufacturers, including but not limited to Y2K compliance of product sold. ©2001 Zones, Inc. All rights reserved. Unauthorized duplication is a violation of applicable laws. Apple, the Apple logo, Macintosh and PowerBook are registered trademarks of the Apple Computer, Inc.



for Digital Pros



Apple® Titanium PowerBook® G4

“ I can now create music whether I’m hanging out at home or touring in Europe.”

— Kurtis Mantronik, Artist, Remixer and Producer, as quoted on Apple’s website.



Light in weight, not in features.

Apple Titanium PowerBook G4

Includes:

- 5-hour battery
- Full set of ports including VGA
- DVD-ROM Drive
- DVD Power Supply

= 5.3 pounds

\$2594⁹⁹

FREE Mac

with purchase of any Apple CPU.
Visit www.maczone.com
for complete details

G4 Starting At Only
\$2594⁹⁸

Comparable PC Notebook



System with Standard Battery
3.5 pounds

Triple-Capacity Battery
4.4 pounds

Port Replicator (VGA)
4.8 pounds

DVD-ROM Drive
6.1 pounds

DVD Power Supply
6.5 pounds

= 6.5 pounds

\$3347

Super-powered production.

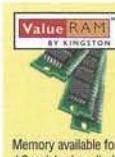
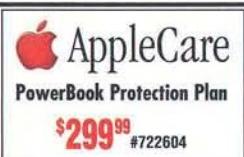
Whether your focus is on producing the news or creating music, you don't want to wait until you reach your home studio before you start editing. Take advantage of the Titanium PowerBook G4's mobile supercomputing power and free yourself from traditional post-production environments.

“I've been waiting some time for the day when we could do non-linear, broadcast TV-quality editing on a simple laptop. So I was thrilled when I heard that we could do this with Final Cut Pro and a PowerBook.” — Rick Lockridge, CNN Technology Correspondent, as quoted on Apple's website.

Data based on Apple research.

A mobile power-user's dream come true.

Made of commercial-grade titanium, one of the lightest and most durable metals on the planet, the PowerBook G4 offers a full complement of powerful features – including such notebook firsts as a slot-loading DVD-ROM drive – and has room for a full gigabyte of RAM. Yet it weighs only 5.3 pounds and is only one inch thin.



Upgrade Your PowerBook

For PowerBook 400/500MHz

#116658	64MB	\$27.99
#116659	128MB	\$39.99
#135217	256MB	\$139.99*
#116023	512MB	\$399.99*

Memory available for other PowerBook models. Prices subject to change.

*Special price - limited to stock on hand.

Processor	Titanium G4/400MHz	Titanium G4/500MHz
Hard Drive	10GB	20GB
RAM	128MB	256MB
Optical Drive	DVD	DVD
TFT Screen	15.2"	15.2"
Graphics Card	8MB ATI RAGE Mobility 128	8MB ATI RAGE Mobility 128
	\$2594 ⁹⁸	\$3494 ⁹⁸
	#130731	#130730

Corporate bids welcome!
Fax to 1-425-430-3420

A NASDAQ COMPANY Ticker Symbol: ZONS

Source Code
MW081

Order by Phone
1.800.436.0606

Order Online Today
www.maczone.com

Creative technology from CDW



Apple® Power Mac™ G4 466MHz minitower

- 466MHz PowerPC™ G4 processor
- RAM: 128MB std., 1.5GB max.
- 30GB Ultra ATA hard drive
- CD-RW drive
- 56Kbps modem
- 10/100/1000BASE-T Ethernet
- Mac OS 9.1

\$1695.00 CDW 267761

Apple Power Mac G4 533MHz minitower

- 533MHz PowerPC™ G4 processor
- RAM: 128MB std., 1.5GB max.
- 40GB Ultra ATA hard drive
- CD-RW drive
- 56Kbps modem
- 10/100/1000BASE-T Ethernet
- Mac OS 9.1

\$2195.00 CDW 267762

Apple Power Mac G4 733MHz minitower

- 733MHz PowerPC™ G4 processor
- RAM: 256MB std., 1.5GB max.
- 60GB Ultra ATA hard drive
- Combination DVD-ROM and CD-RW drive
- 56Kbps modem
- 10/100/1000BASE-T Ethernet
- Mac OS 9.1

\$3495.00 CDW 267769



NEC/Mitsubishi Diamond Pro 2060u

With its superior screen display and dynamic cabinet design, NEC/Mitsubishi Diamond Pro 2060u brings you to the forefront of flat screen technology packed into this 22" CRT with 20" viewable image size.

\$929.99 CDW 266444

BUSlink Portable 60GB FireWire hard drive

With the BUSlink Portable 60GB FireWire® hard drive, you can get continuous access to your data. This BUSlink hard drive features a 50Mbps data transfer rate and a 7200 rpm rotational speed.

\$349.95 CDW 259730



Apple iMac™

- 500MHz PowerPC™ G3 processor
- RAM: 64MB std., 1GB max.
- 20GB hard drive
- CD-RW drive
- 56Kbps modem
- 10/100BASE-T Ethernet port
- AirPort™ ready

\$1195.00 CDW 278448

Apple Power Macintosh™ G4 Cube

- 450MHz PowerPC™ G4 processor
- RAM: 64MB std., 1.5GB max.
- 20GB hard drive
- 4X Max DVD-ROM drive with DVD-video playback
- 56Kbps modem
- 10/100BASE-T Ethernet connection
- AirPort ready with built-in antennas

\$1295.00 CDW 235622



Less than
8" high



Computing Solutions
Built for Business®

CDW carries the full line of Mac® and Mac compatible products. Call your CDW account manager or visit us at www.cdw.com for more information.



Authorized Reseller

All pricing subject to change. For all prices and products, CDW® reserves the right to make adjustments due to changing market conditions, product discontinuation, manufacturer price changes or typographical errors in advertisements. All products sold by CDW are third party products and are subject to the warranties and representations of the applicable manufacturers. Please refer to www.cdw.com for additional terms and conditions.

©2001 CDW® Computer Centers, Inc. 200 N. Milwaukee Avenue, Vernon Hills, IL 60061 MW7530A/B 8/01

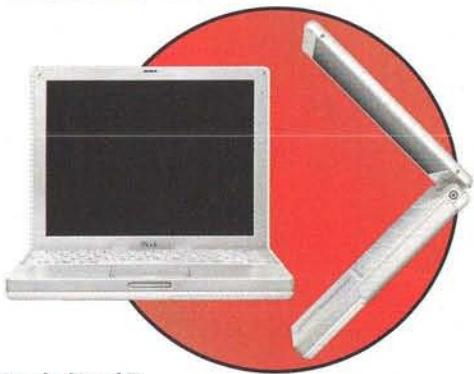
"I approved some great new software."

Translation: I approved software that's incompatible with our systems.

Apple iBook™

► 500MHz PowerPC G3 processor ► RAM: 64MB std., 576MB max.
► 10GB hard drive ► 12.1" active-matrix display ► 24X Max CD-ROM
drive ► 56Kbps modem and 10/100 Ethernet ► Mac® OS 9.1

\$1299.00 CDW 294701



Apple iBook™

► 500MHz PowerPC™ G3 processor ► RAM: 128MB std., 576MB max.
► 10GB hard drive ► 12.1" active-matrix display ► 56Kbps modem and
10/100 Ethernet ► Mac® OS 9.1

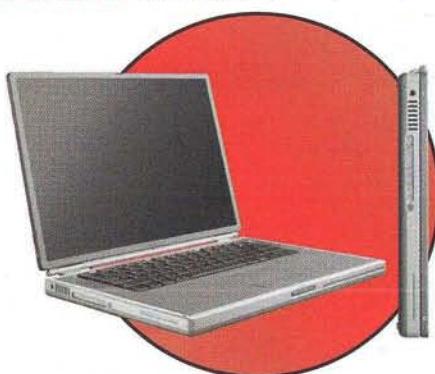
With 8X Max DVD-ROM drive **\$1499.00** CDW 294705

With 8X4X24 CD-RW drive **\$1599.00** CDW 294706

Apple PowerBook®

► 400MHz PowerPC G4 processor ► RAM: 128MB std., 1GB max.
► 10GB hard drive ► 6X Max DVD-ROM drive ► Mac OS 9.1 ► 15.2"
active-matrix widescreen display ► Includes: Apple iMovie 2 Software

\$2595.00 CDW 267777



Apple PowerBook

► 500MHz PowerPC™ G4 processor ► RAM: 256MB std., 1GB max.
► 20GB hard drive ► 6X Max DVD-ROM drive ► Mac OS 9.1 ► 15.2"
active-matrix widescreen display ► Includes: Apple iMovie 2 Software

\$3495.00 CDW 267778

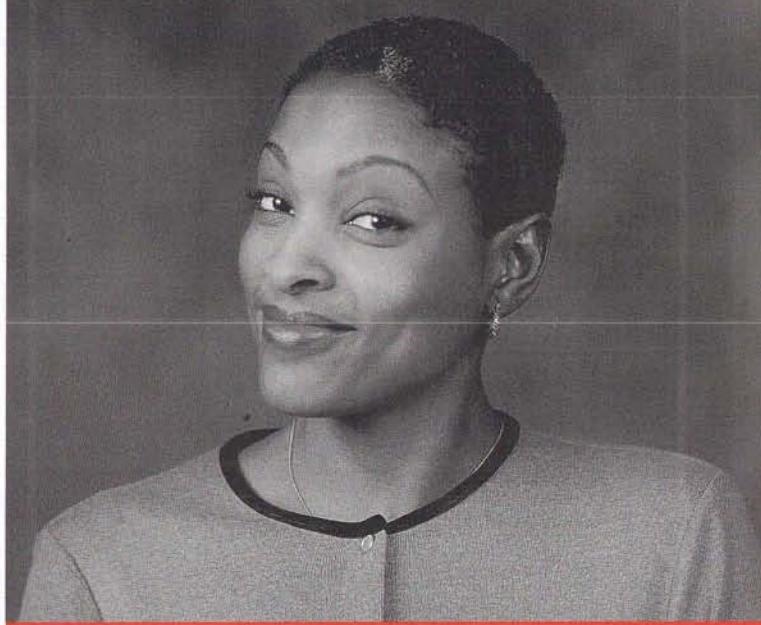


Authorized Reseller

BUSlink

NEC/MITSUBISHI
NEC-MITSUBISHI ELECTRONICS DISPLAY
SEE MORE.

Apple, the Apple logo, Mac, Mac OS, Power Macintosh and PowerBook are registered trademarks of Apple Computer, Inc. AirPort, iBook, iMac, iMovie and Power Mac are trademarks of Apple Computer, Inc. PowerPC™ and the PowerPC logo™ are trademarks of International Business Machines Corporation, used under license therefrom.



At CDW, we understand
what it can be like in IT.

That's why we sell all the brand name technology solutions you might need. Like software, PCs, storage, networking, telephony and more. Plus, all the services to support them. You name it and we've got it.

One-Stop Solution: From systems software to networking, no matter what you need, CDW will ship you what you need - usually the same day.



Personal Expertise: CDW assigns an account manager and a team of product experts to your business so we get to understand your IT needs.



Reliable Resource: CDW delivers complete computing solutions at competitive prices. Along with the backing and reliability of a Fortune® 500 company.



www.cdw.com

CDW
Computing Solutions
Built for Business®

800-509-4239

Keeping pace with your technology needs.

The face of technology is ever-changing, and like you, we're moving right along with it. As technology advances to levels we previously could only imagine, APS Tech remains on the forefront, positioned to help you move forward in your business and personal endeavors. And while your computing and data storage needs continue to evolve, APS Tech's award-winning products will keep you at the head of the pack. Call to order today.



\$989.95

APS DVD-R/RW+CD-RW FireWire

- Affordable DVD-RW/CD-RW writer in one drive
- FireWire interface
- Records and reads DVD-R/RW and CD-R/RW discs
- Produce digital content on DVD and CD media
- Easy connectivity to G4 workstations and cubes, PowerBooks and iMacDV systems



\$389.95

APS CD-RW 24x10x40 FireWire plus

- FireWire and USB interfaces
- Hot-swappable
- Blazing 24X record speed
- Burn full CD in just three minutes
- Mac and PC compatible

APS CD-RW FireWire plus Drives

Model	Price
APS CD-RW 8x4x32 FireWire Plus	\$199.95*
APS CD-RW 16x10x40 FireWire Plus	299.95*
APS CD-RW 24x10x40 FireWire Plus	389.95

* price after \$30 mail-in rebate.



\$1,599.95

with Retrospect software for Mac and PC

APS DLT1

- Store up to 40GB (native) on one DLTtape IV cartridge
- Sustained transfer rate of up to 3MB/sec (native)
- Blazing backup speed of more than 20GB/hour
- Cross-platform — Mac and PC compatible
- Backward compatible for easy integration

APS DLT Series Backup

Model	Price
APS DLT1	\$1,599.95
APS DLT8000	3,299.95
APS SuperDLT20	4,999.95

Ships with Retrospect software for Mac and PC



\$1,549.95



with Retrospect software for Mac and PC

APS AIT+ FireWire

- 35GB native backup
- Native SCSI adapted for FireWire
- Perfect for 3-D graphics workstations
- 4MB sustained data transfer rate
- Ships with Retrospect for Mac and PC

APS AIT Tape Backup

Model	Price
APS AIT+ SCSI	\$1,449.95
APS AIT+ FireWire	1,549.95
APS AIT II LVD	3,299.95

Ships with Retrospect software for Mac and PC



\$849.95



with Retrospect software for Mac and PC

APS HyperDAT® III FireWire

- Reliable DDS-3 technology
- 12GB native backup
- Ideal for entry-level networks
- Fast FireWire interface for high-end workstations
- Ships with Retrospect for Mac and PC

APS HyperDAT Tape Backup

Model	Price
APS HyperDAT® III (DDS-3) SCSI	\$749.95
APS HyperDAT® III (DDS-3) FireWire	849.95
APS HyperDAT® IV (DDS-4) LVD	1,049.95

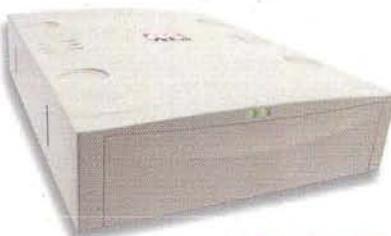
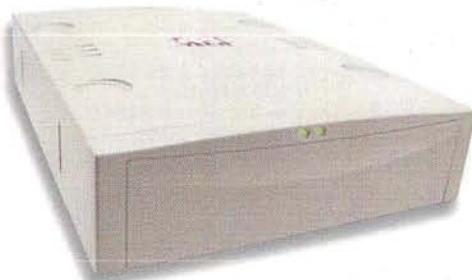
Ships with Retrospect software for Mac and PC

Visit our website for a complete listing of products:
www.apstech.com



Drives on these pages are covered by the APS 30-Day Money-Back Guarantee.

with the speed of technology.



\$329.95



\$219.95

APS 60GB FireWire plus Hard Drive

- FireWire and USB interfaces
- Hot-swappable
- No device IDs, terminators
- Ideal for DV storage
- Share among Macs and PCs

APS FireWire plus Hard Drives

Model	Price
APS 20GB 7200 RPM FireWire Plus Hard Drive	\$229.95
APS 40GB 7200 RPM FireWire Plus Hard Drive	289.95
APS 60GB 7200 RPM FireWire Plus Hard Drive	329.95
APS 75GB 7200 RPM FireWire Plus Hard Drive	519.95

APS Ultra160 LVD SCSI Drives

Model	RPM	*Internal	External	APS Pro2
APS ST 18GB Ultra160 LVD	7200†	\$279.95	\$349.95	
APS ST 36GB Ultra160 LVD	7200†	449.95	519.95	
APS ST 18GB Ultra160 LVD	10,000	309.95	379.95	
APS ST 36GB Ultra160 LVD	10,000	569.95	639.95	
APS ST 73GB Ultra160 LVD	10,000	999.95	1,069.95	
APS ST 180GB Ultra160 LVD	7200	—	2,299.95	

Drives listed above carry a five-year warranty, except those marked.

† Marked drives carry a three-year warranty.

APS Ultra SCSI Drives

Model	RPM	*Internal	APS Pro2
APS ST 18GB Ultra SCSI	7200	\$279.95	\$349.95

Drives listed above carry a five-year warranty.

* Internal configuration does not include a mounting bracket. Intended as a replacement internal SCSI drive.

APS 40GB USB Hard Drive

- 7200 rpm hard drive
- Hot-swappable
- Convenient USB interface
- Affordable storage

APS USB Hard Drives

Model	RPM	APS Pro2
APS 20GB USB Hard Drive	7200	\$179.95
APS 40GB USB Hard Drive	7200	219.95



\$399.95

LaCie 8x4x24x PocketCD-RW

- Powerful, pocket-sized CD-RW
- U&I technology — FireWire and USB ports
- Mac and PC compatible

LaCie PocketDrives

Model	Price
LaCie 8x4x24 PocketCD-RW	\$399.95
LaCie 10GB PocketDrive	299.95*
LaCie 20GB PocketDrive	399.95*
LaCie 30GB PocketDrive	549.95*
LaCie 48GB PocketDrive	849.95

* price after \$30 mail-in rebate.



\$6,199.95

APS 5-Bay Hardware RAID System

- Fast access, mammoth capacity
- Hot-swappable drives, fans, power supplies
- RAID levels 0, 1, 0+1, 4 and 5

APS RAID System

Model	Price
APS Hardware RAID 5/18GB LVD 10K	\$6,199.95

Mac OS, FireWire and the FireWire logo are registered trademarks of Apple Computer, Inc. APS Tech is a registered trademark. Other brand or product names are registered trademarks or trademarks of their respective holders.

- International customers must pay for all shipping charges.
- Prices and specifications are subject to change without notice.
- All prices are in US dollars, FOB USA.
- Your APS Tech Drive unit may contain one or more components that were in prior use, but which have been inspected and repaired or replaced by APS Tech. APS Tech warrants APS Tech Drive units, monitors, brackets, power supplies, and wires, at its discretion, replace or repair products found to be defective according to the specific terms of the warranty accompanying the product.
- Refused orders subject to 20% restocking fee.

Source Code: MW0801

Call 800 - 645 - 5401

Corporate Sales (800) 395 - 5871 • International (503) 844 - 4600

6am - 9pm, Monday - Friday, 9am - 4pm Saturday - Sunday, Pacific Time



Circle 56 on card or go to www.macworld.com/getinfo



Advanced tools for digital visionaries™

www.macworld.com August 2001 111

Since 1987



BEST BUY AWARD WINNER!

We've been satisfying customers
for nearly 14 years!



#1 Drive store on the Web! Check out more at www.megahaus.com/mac

Monitors

ViewSonic

LCD Flat-Panel
Monitor For
UNDER \$500!!



15" Viewable
(VE150) **\$489**
See our complete selection
on our website under the
"Monitors" listing.

CD-Rewritable Drive



16x10x40
CD-RW

(7032 - Ice
Model Shown) **\$319**
• Includes Toast Software
• Available in a choice of
colors

HARD DRIVES

Quantum

ULTRA 160/m SCSI	Will work on older SCSI Ultra Wide/Ultra-2 controllers.
9.2GB	10000 8MB TY309200LW \$185
18.4GB	10000 8MB KW318400LW CALL
18.4GB	10000 8MB TY318400LW \$239
36.7GB	10000 8MB KW336700LW CALL
36.7GB	10000 8MB TY336700LW \$439
73.4GB	10000 8MB KY373400LW CALL
73.4GB	10000 8MB TY373400LW \$849
IDE ULTRA ATA/100	
10.0GB	4500 128K QML10000LD \$78
10.2GB	7200 2MB QMP10200AS \$85
20.0GB	4500 128K QML20000LD \$89
20.5GB	7200 2MB QMP20500AS \$103
30.0GB	4500 128K QML30000LD \$102
30.0GB	7200 2MB QMP30000AS \$125
40.0GB	4500 128K QML40000LD \$115
40.0GB	7200 2MB QMP40000AS \$145
60.0GB	7200 2MB QMP60000AS \$189



ULTRA 160 SCSI	
9.1GB	10,000 4MB 07N3220 \$169
18.3GB	10,000 4MB 07N3210 \$219
36.9GB	10,000 4MB 07N3200 \$415
IDE Ultra ATA/100	
15.0GB	7200 2MB 07N5637 \$95
20.0GB	7200 2MB 07N6652 \$99
30.0GB	7200 2MB 07N5639 \$135
40.0GB	7200 2MB 07N6654 \$139
60.0GB	7200 2MB 07N6655 \$205
75.0GB	7200 2MB 07N3935 \$269

WESTERN DIGITAL

IDE Ultra ATA/100	
10.0GB	5400 2MB WD100EB \$78
20.0GB	5400 2MB WD200EB \$83
20.0GB	7200 2MB WD200BE \$93
30.0GB	5400 2MB WD300AB \$95
30.0GB	7200 2MB WD300BB \$115
40.0GB	5400 2MB WD400AB \$110
40.0GB	7200 2MB WD400BB \$135
60.0GB	5400 2MB WD600AB \$159
60.0GB	7200 2MB WD600BB \$199
80.0GB	5400 2MB WD800AB \$209
80.0GB	7200 2MB WD800BB \$249



IDE Ultra ATA/100	
20.4GB	5400 512K MPG3204AT \$89
30.7GB	5400 512K MPG3307AT \$105
40.0GB	5400 512K MPG3409AT \$119

Maxtor

IDE ULTRA ATA/100	
10.0GB	5400 2MB 2R010H1 \$78
15.0GB	5400 2MB 2R015H1 \$85
10.0GB	7200 2MB MST010H1 \$89
20.0GB	7200 2MB MST020H2 \$98
30.0GB	7200 2MB MST030H3 \$120
40.0GB	7200 2MB MST040H4 \$137
60.0GB	7200 2MB MST060H6 \$199
81.9GB	5400 2MB M9V196H8 \$235

Since 1987



MEGAHAUS
Everything High Tech
All Under One Roof

USB & 1394 Technology

USB 4x4x6 CD-Rewritable for PC or Mac (CDWS4EUSB)	\$204
USB 250MB Zip Drive w/Software (ZIP250USB)	\$132
USB External Hard Drives w/Cable: 10GB or 20GB (USB10/20GB)	\$155/\$165
30GB or 40GB (USB30/40GB)	\$185/\$199

1394 PCI/MAC BOARD KIT (70HTL1394I)	\$89
1394 Hub (70HTL00030)	\$89
1394 Repeater: (70HTL00020)	\$45
1394 15 Ft. Cable: 6-to-4pin (70CAB13943)	\$28
1394 Sony 12x8x32 CD-RW (CRX1600LAZ)	\$275
1394 3.5 Hard Drives w/Case (7200 RPM): 10GB/20GB (FW10GB72/FW20GB72)	\$230/\$243
30GB/40GB (FW30GB72/FW40GB72)	\$271/\$284
60GB/76GB (FW60GB72/FW76GB72)	\$394/\$414

Hard Drive

Quantum

18.4 GB / 10,000 RPM 8 MB Buffer	\$239
SCSI Ultra 160	\$239

Ext. **\$369**
Int. (TY318400LWX)

Upgrade Your Mac With A New Controller Card!
Adaptec Power Domain SCSI (APD29160MAC) **\$269**



CD-Rewritable Drive

YAMAHA

16x10x40 SCSI CD-RW w/Mac & PC Mastering Software and 1 Disk	\$245
Int. (CRW2100SZ) \$245	

Ext. (CRW2100SXZ) **\$325**



Hard Drive

Hard Drive

Seagate

18.4 GB / 7,200 RPM 2 MB Buffer	\$215
IDE For Older Model Macs	

\$275

Ext. (ST318417NX)



CD-R ZIP Drive

250MB ZIP Drive

250MB ZIP Ext. iDrive	iomega
Just \$109 (ZIP250)	

250MB disks **\$17** each (ZIP250C)



HARD DRIVES

Seagate

(Call for deals
on our externals)

ULTRA SCSI	Int.
18.4GB	7200 2MB ST318417N \$215

ULTRA WIDE SCSI	Int.
18.4GB	7200 2MB ST318417W \$205

ULTRA 160 SCSI	Int.
9.2GB	10,000 4MB ST3920SLW \$187

ST3920SLW	\$187
ST318400LW	

ST318400LW	\$189
ST318417LW	

ST318417LW	\$189
ST318400LW	

ST318400LW	\$189
ST318417W	

ST318417W	\$189
ST318400LW	

ST318400LW	\$189
ST318417N	

ST318417N	\$189
ST318400LW	

ST318400LW	\$189
ST318417W	

ST318417W	\$189
ST318400LW	

ST318400LW	\$189
ST318417N	

ST318417N	\$189
ST318400LW	

ST318400LW	\$189
ST318417W	

ST318417W	\$189
ST318400LW	

ST318400LW	\$189
ST318417N	

ST318417N	\$189
ST318400LW	

CD ROM

SCSI INTERNALS

Teac CD532S	32X 85ms	\$72
NEC CDR3010	40X 85ms	\$67
Toshiba XM6401B	40X 85ms	\$69
Plextor PX40TS	40X 85ms	\$87

WIDE SCSI

Plextor PX40TSUW	40X 85ms	\$99
Call About Our SCSI External Drive Deals		

IDE

Teac CDS40E	40X 85ms	\$43

<tbl_r cells="3" ix="

LACIE

LaCie PocketDrive™ CD-RW 8424
External 8x/4x/24 USB/FireWire® Mobile CD-RW Drive
•Max. 8x-write/4x-reverse/32x-read
•2MB buffer
•Software, blank CD-R & CD-RW
•USB/FireWire® connectors •For Windows/Mac
\$399.99 (LAC 300383)

300103 External FireWire® CD-RW Drive
•Max. 8x-write/4x-reverse/32x-read •Includes TOAST software (LAC 300103) **\$229.99**

300122 External FireWire® DVD-RW Drive
•Max. storage: 9.4GB double-sided (4.7GB single-sided) •Windows®/Mac® (LAC 300122) **\$499.99**

300107 External 750GB FireWire® Hard Drive
•Max. transfer rate: 400 MB/s/sec •8.5ms average seek time •7200 rpm •2MB buffer •PC/Mac (LAC 300107) **\$549.99**

MP3 Players

ALL FOR MAC®/PC!

Riövolt™

Digital Audio CD Player

•Plays audio CDs +

MP3/WMA files

recorded to CD-Rs (20+ hr. play) •120-sec. electronic shock protection •Up to 15 hr. battery life with 2 AA's (included)

\$169.99 (DIA 90260193)

Rio 600 Digital Audio Player

•32MB memory, upgrade to 372MB •Supports

MP3/WMA formats •Skip-free •USB port •Headphones (DIA 90260027) **\$149.99**

Nike psn [play 60 Portable Sport Audio Player

•Skip-free audio •32MB built-in memory for up to 60 min. of listening •Upgradable with MMC cards

•Supports MP3/WMA digital formats •USB (DIA 90260094) **\$169.99**

Rio 800 Digital Audio Player

•Capture/mix/play digital music from Internet or CDs

•64MB memory for 2-hr. music/32-hr. talk •Supports

MP3/WMA •USB •Remote & headphones (DIA 90260092) **\$249.99****Macintosh® Software****Symantec SystemWorks**

•Smartest way to keep your Mac® at its best •Mac® CD

\$129.99

-\$50.00 Mail-In Version/Competitive Upgrade Rebate

\$79.99

After Rebate! (SMM SYSWORKS-C)



SYMANTEC.

Mac® OS X by Apple (APP OSX-C) **\$119.99**Toast® 5 Titanium by Roxio® (RXM TOAST-C) **\$89.99**Office 2001 For Macintosh® by Microsoft® (MSM OFFICE21-C) **\$429.99**Spring Cleaning™ (Version 4.0) by Aladdin Systems (AAM SPRING4-C) **\$44.99**FileRuler Pro 5.5 by FileMaker (FMN FMPS5-C) **\$239.99****Mac® Entertainment****Propellerhead Reason**

•First software synth to surpass dedicated hardware

•Complete with synths, samplers, drum machines, loop players, sequencer & more •Windows®/Mac® CD

\$299.99

(PPH REASON-C)

American McGee's ALICE™ by Aspyr® Media (AYA ALICE-C) **\$44.99**Tony Hawk Pro Skater 2 by Aspyr® Media (AYA TONYHAWK2-C) **\$39.99**Interactive Bass by Emedia (EMB BASS-C) **\$49.99**Unreal® Tournament - Game Of The Year Ed. by Microsoft® (GTA UNREALGYC) **\$17.99**

To Order Toll Free and Receive our NEW Exciting Free Catalogue

24 Hours,

7 Days,

Anywhere

In The USA

800-221-8180

PARK ROW • NEW YORK • NY • 10038

FAX: 1-800-232-4432

Not responsible for typographical or pictorial errors. Merchandise is brand-new, factory-fresh & 100% guaranteed! *Except where noted! Some quantities may be limited.

J&R COMPUTER WORLD

NEW Apple® iBook™ G3 Active-Matrix Color Notebooks

Apple® iBook™ G3/500MHz 64/10GB/CD Active-Matrix Color Notebook
 •12.1" XGA •500MHz PowerPC™ G3 processor •64MB SDRAM •10GB HD •24x max. CD-ROM •8MB VRAM •56K v.90 modem •10/100BASE-T •Mac® OS9.1 •iMovie™ 2
\$1299.99 (APP M7698LL/A)

Apple® iBook™ G3/500MHz 128/10GB/DVD Active-Matrix Color Notebook
 •12.1" XGA •500MHz PowerPC™ G3 processor •128MB SDRAM •10GB HD •8x max. DVD-ROM •8MB VRAM •56K v.90 modem •10/100BASE-T •Mac® OS9.1 •iMovie™ 2
\$1499.99 (APP M7692LL/A)

DOUBLE YOUR MEMORY ON ANY APPLE® DESKTOP OR LAPTOP COMPUTER YOU PURCHASE AT J&R... FREE!
 Installation EXTRA! Cannot be combined with any other J&R offer.
Apple® iBook™ G3/500MHz 128/10GB/DVD-CRW Active-Matrix Color Notebook
 •12.1" XGA •500MHz PowerPC™ G3 processor •128MB SDRAM •10GB HD •DVD/CD-RW •8MB VRAM •V.90 modem •10/100BASE-T •Mac® OS9.1 •iMovie™ 2
\$1799.99 (APP M8520LL/A)

Apple® PowerBook® GT/Titanium Computers!

Apple® PowerBook® G4/400 128/10GB/DVD-ROM/10/100BASE-T
 •400MHz PowerPC™ processor w/Velocity Engine •15.2" TFT display •128MB SDRAM •10GB HD •DVD-ROM •8MB VRAM •56K max. modem •10/100BASE-T •iMovie™ 2/iTunes •Mac® OS9.1 •Titanium
\$2599.99 (APP M7952LL/A)

Apple® PowerBook® G4/500 256/20GB/DVD-ROM/10/100BASE-T
 •500MHz PowerPC™ processor w/Velocity Engine •15.2" TFT display •256MB SDRAM •20GB HD •DVD-ROM •8MB VRAM •56K max. modem •10/100BASE-T •iMovie™ 2/iTunes •Mac® OS9.1 •Titanium
\$3499.99 (APP M7710LL/A)

Apple® G3 iMac™ Computers!
Apple® G3 iMac™ DV/400 64/10GB/CD/Ethernet All-In-One Computer
 •400MHz PowerPC™ G3 processor •64MB SDRAM •10GB HD •24x max. CD-ROM •Digital Video •8MB VRAM •10/100BASE-T •V.90 modem •iMovie™ 2 •15" color display •Mac® OS 9.1 •Indigo
\$899.99 (APP M7683LL/A)

Apple® G3 iMac™ DV/500 64/20GB/CD-RW/Ethernet All-In-One Computer
 •500MHz PowerPC™ G3 processor •64MB SDRAM •20GB HD •CD-RW •Digital Video •16MB VRAM •10/100BASE-T •V.90 modem •iMovie™ 2 •15" color display •Mac® OS 9.1
\$1199.99 INDIGO (APP M7669LL/A)
 BLUE DALMATION (APP M8347LL/A)
 FLOWER POWER (APP M8348LL/A)

Apple® G3 iMac™ DV Special Edition /600 128/40GB/CD-RW/Ethernet All-In-One Computer
 •600MHz PowerPC™ G3 processor •128MB SDRAM •40GB HD •CD-RW •Digital Video •16MB SDRAM •10/100BASE-T •V.90 modem •iMovie™ 2 •15" color display •Mac® OS 9.1
\$1499.99 BLUE DALMATION (APP M7675LL/A)
 FLOWER POWER (APP M7679LL/A)
 GRAPHITE (APP M7680LL/A)

©2001 Apple Computer, Inc. All rights reserved. Apple, Apple logo, Macintosh, Power Macintosh & iMac are registered trademarks of Apple Computer, Inc. All other trademarks are the property of their respective owners. All Apple products designed to be accessible to individuals with disabilities. Prices & promotions may not be combined with any other offers & promotions. Offers good while supplies last. PowerPC & the PowerPC logo are trademarks of International Business Machines Corporation used under license therefrom.

Order from www.jandr.com AOL Keyword: J&R

**J&R CORPORATE SALES BUSINESS LEASING:
No Money Down, No Payments for 30 Days!**

*Call J&R Corporate Sales for details at
1-800-221-3191 or 1-212-238-9080

J&R CORPORATE
SALES

NEW CATALOGUE!

Digital Cameras**Nikon COOLPIX® 995**

Digital Camera
•3.34 Megapixel
•4x-optical
•4x-digital zoom
•Pop-up flash
•Includes 8MB CompactFlash™, Li-Ion battery & charger •USB •Windows®/Mac®
\$799.99 (Nikon COOLPIX995)



ALL FOR MAC®/PC!

Nikon
ELECTRONIC IMAGING

Olympus CAMEDIA D-510 Digital Zoom Camera
•2.1 megapixel •3x-optical/9x-digital zoom •1.8" TFT color LCD monitor •Macro/Burst/QuickTime® movie modes •8MB SmartMedia® •USB •Windows®/Mac® (DSC D510ZOOM) **\$399.99**

Canon PowerShot S110 Digital ELPH Camera
•2.1 megapixel •Up to 1620 x 1220 res.
•2x-optical/5x-digital zoom •1.5" TFT color LCD •8MB CompactFlash™ •Flash •USB •Windows®/Mac® (CAN S110) **\$479.99**

Sony Cyber-Shot® Digital Camera
•3.34 megapixel •3x-optical/6x-digital zoom •2048 x 1536 (max.) •5 programmable AE modes •8MB Memory Stick® •1.5" LCD •InfoLithium® battery •USB •Windows®/Mac® (SON DSC-PI) **\$649.99**

CANON Digital Camcorders**Canon GL1**

Digital Camcorder
•3CCD image sensors •20x Fluorite optical/10x-digital zoom
•Optical stabilizer •2.5" LCD •Color viewfinder
CALL FOR PRICE! (CAN GL1)



ZR30MC Digital Camcorder •2.5" color view screen
•2.5" LCD •10x-optical/200x-digital zoom •Image stabilizer •Digital photo mode •IEEE 1394 •8MB card (CAN ZR30MC) **CALL!**

SONY Digital Camcorders**Sony DCR-VX2000**

3-CCD Digital Camcorder
•Memory Stick® •VGA 640 x 480 still image res
•12x optical/48x digital zoom •Super SteadyShot™ •iLINK® •2.5" SwivelScreen™ •Color viewfinder
SONY
CALL FOR PRICE! (SON DCRVX2000)



DCR-TRV30 Digital Handycam® Camcorder
•1.550 pixel CCD •Carl Zeiss® Vario-Sonnar 1 lens
•10x optical/120x digital zoom •3.5" SwivelScreen™ •Color viewfinder •Stabilizer •NightShot™ •iLINK® (SON DCRTRV30) **CALL!**

Scanners**EPSON Perfection™ 1640SU PHOTO Color Scanner with Transparency Adapter**

•48-bit •1600 x 3200 dpi, mac. res.
\$369.99 EPSON (EPS 1640SU)
USB/SCSI!! PC/MAC!!



Canon CanoScan® D2400UF Flatbed Color Scanner
•2400 x 4800 dpi res. •48-bit •FAR technology •Built-in film adapter •USB •Windows®/Mac®

\$499.99 (CAN D2400UF) **NEW! USB!! PC/MAC!!**

Matrox Video Editing**Matrox RTMac**

Realtime Native-DV Editor for Power Mac® G4
•Requires Final Cut Pro (2.0)
•Realtime native-DV editing with realtime effects for the Power Mac® G4
\$999.99 (MAT RTMAC) **HOT LINE!!**



All Major Credit Cards Accepted
Overnight Delivery Available!

Order Code: MWM0801

(Prices Good Until 08/15/2001)

Circle 57 on card or go to www.macworld.com/getinfo

Tri-platform Calendaring

OSX Carbon
Mac OS 7.1-9.x
Windows 95-2000



\$49!
per user

CalendarMonster 1.2

Also: Quickly and easily integrate
with your FileMaker Pro projects

Available exclusively on the web!
FREE fully-functional demo
<http://www.asctech.com>



OS X
Showcase

Advertise in
Macworld's
OS X Showcase!

Don't miss this special
opportunity to advertise in the
OS X Showcase, built to
keep our readers aware of the
latest and hottest products.

Contact your OS X Showcase
Account Manager today.

Niki Stranz, Lower half US
800-597-1594 ext. 1

Carol Johnstone, Upper half US
800-597-1594 ext. 2

QuicKeys® X

Goes **Public**

Download The OSX Beta at cesoft.com



Come see it in action
at Macworld NY
booth 2302



© Copyright 2001 CE Software, Inc. CE Software and the CE Software logo are trademarks and QuicKeys is a registered trademark of CE Software. All other brand or product names are the property of their respective holders.

A NEW SYSTEM HAS ARRIVED



Don't Get Caught With Your Mac Down!

No Mac is complete without Timbuktu Pro, the premier remote control and file transfer software for Mac OS for over ten years. No network is complete without the smart systems management of netOctopus.

Both tools are newly rewritten for OS X, bringing the power and simplicity of Netopia software to the world's most advanced operating system. For deployment, training and support of all your Macs (and PC's!) Timbuktu and netOctopus are indispensable!

Are you ready to migrate? We're ready to take you there.

macosxready.com

Timbuktu Pro

netOctopus



Visit
www.hp.com/go/mac-connect
for hp Mac OS X information

STONE STUDIO™

FOR MAC OS X
DOWNLOAD OR
CD-ROM AVAILABLE

- Create™ create entire websites, vector artwork, drawings
- GIFfun™ make animated web graphics
- PackUp&Go™ compress and uncompress files
- SliceAndDice™ cut up pictures for online use
- PhotoToWeb™ make photo albums and websites
- TimeEqualsMoney™ billing & invoicing
- PStill™ make PDF and view EPS files



STONE
design

www.STONE.com

Extend Your Aqua Desktop



Xtools
X Window Server

Display remote graphical
applications from any machine.

TENON
INTERSYSTEMS

iTools
Apache Web Server
Configure Apache, DNS, FTP and
WEBmail from any place in the world!

Tenon Intersystems • www.tenon.com • sales@tenon.com • (805)963-6983

Macworld PriceFinder Surfin' Sweepstakes Official Rules

NO PURCHASE NECESSARY TO ENTER OR WIN.

Sweepstakes begins at 12:01 AM Pacific Time (PT) on 07/1/01 and ends at 11:59 PM (PT) on 09/28/01. To enter, go to the Macworld PriceFinder homepage: www.macworldpricefinder.com and locate the 6 products listed under the "Goodies" category at the top right. Click on each of the 6 products on the list until the "Surfer on the Surf Board" icon is displayed on one of the Product pages. Click on it to go to the Entry Page. You will earn an additional entry in the sweepstakes when you agree to receive a special mailing from us. To receive your additional entry and mailing follow all instructions provided on the online screens immediately after your initial entry registration. You can also enter the Sweepstakes by mail. To enter by mail, hand-print your name, address, telephone number, and e-mail address on a postcard ONLY and mail to: Macworld PriceFinder Surfin' Sweepstakes, 301 Howard Street, 16th Floor, San Francisco, CA 94105. Each mail-in entry will count as 2 entries. All mail-in entries must be postmarked between 07/1/01 and 09/28/01 and received by 10/08/01. Entry limit: Irrespective of entry method, a maximum of 2 entries per person or email address throughout the duration of the Sweepstakes. Online entries will be deemed made by the authorized account holder of the e-mail address submitted at time of entry. The authorized account holder is deemed as the natural person who is assigned to an e-mail address by an Internet access provider, service provider or other organization that is responsible for assigning e-mail addresses or the domain associated with the submitted e-mail address. Mass entries or entries generated by a script, macro or use of automated devices will be disqualified. No mechanical reproductions permitted. Photocopied or incomplete entries are void. All entries become the property of Mac Publishing LLC, 301 Howard Street, 16th Floor, San Francisco, CA 94105 (Sponsor) and will not be returned or acknowledged.

Open to legal residents of the 50 United States and the District of Columbia, age 18 and older. Employees and their immediate families of Mac Publishing LLC, its subsidiaries, advertising and promotion agencies are not eligible to enter. By entering, entrants agree to hold Sponsor, its advertising and promotion agencies and all affiliated companies and all of their employees, officers, directors and shareholders harmless from and against any and all liability, damages, judgments, costs, claims, demands or causes of action of any kind arising in connection with participation in the sweepstakes and any errors relating thereto. Void where prohibited by law. Sweepstakes is governed by U.S. law. All federal, state, and local laws and regulations apply. All taxes on prizes are winners' responsibility.

Winners will be selected in a random drawing conducted on or about 10/31/01 from among all eligible entries received. Drawing conducted by an independent judging organization whose decisions are final and binding in all matters related to sweepstakes. Winner notified by mail & will be required to complete & return an Affidavit of Eligibility & Liability Release & Publicity Release which must be returned within 14 days from date printed on the notification letter or an alternate winner will be selected at random. If prize notification letter is returned as undeliverable, it will result in disqualification, and the prize will be awarded to an alternate winner in a separate random drawing. If prize is won by a minor, it will be awarded in the name of a parent or legal guardian. Parent or legal guardian may be required to execute affidavit on minor's behalf. Winners may not substitute or transfer prize. Sponsor reserves the right to substitute any prize with one of equal or greater value in the event a prize is unavailable. Prize is not redeemable for cash. The Sponsor does not make, nor in any manner will be responsible for, any warranty, representation or guarantee relating to prize; provided, however, the prize will be subject to the manufacturer's standard warranty. Except where prohibited by law, entry constitutes permission to use winners' names, prizes won, hometowns and likenesses for online posting, and/or any advertising and publicity without additional compensation.

One (1) Grand Prize: A Power Mac 733 MHz G4 with Super Drive (ARV: \$3,499.00). One (1) First Prize: Hand-shaped Surf Board (ARV: \$1,500.00). All prizes are guaranteed to be awarded. Total ARV of all prizes: \$4,999. Odds of winning depend on the total number of entries received.

No photocopied or mechanically reproduced entries accepted. Sponsor not responsible for error, omission, interruption, deletion, defect, delay in operations or transmission, theft or destruction or unauthorized access to or alterations of entry materials, or for technical, network, telephone equipment, electronic, computer, hardware or software malfunctions of any kind, or inaccurate transmission of, or failure to receive entry information by sponsor on account of technical problems or traffic congestion on the Internet or at any web site or any combination thereof. Sponsor is also not responsible for any injury or damage to entrant's or any other person's computer related to or resulting from playing or downloading any materials in the sweepstakes, or for mail-in entries that are lost, late, misdirected, damaged, incomplete, illegible or postage-due. All entries become the property of sponsor and will not be returned. CAUTION: ANY ATTEMPT BY AN ENTRANT TO DELIBERATELY DAMAGE ANY WEB SITE OR UNDERMINE THE LEGITIMATE OPERATIONS OF THE SWEEPSTAKES IS A VIOLATION OF CRIMINAL AND CIVIL LAWS AND SHOULD SUCH AN ATTEMPT BE MADE, THE SPONSOR RESERVES THE RIGHT TO SEEK DAMAGES FROM ANY SUCH ENTRANT TO THE FULLEST EXTENT PERMITTED BY LAW. IN THE EVENT THIS SWEEPSTAKES IS COMPROMISED OR BECOMES TECHNICALLY CORRUPTED IN ANY WAY, ELECTRONICALLY OR OTHERWISE, THE SPONSOR RESERVES THE RIGHT TO WITHDRAW THE ONLINE TRANSMISSION OF THIS SWEEPSTAKES AND TO SELECT THE WINNER FOR THE PRIZE BY RANDOM DRAWING FROM AMONG ALL ELIGIBLE ENTRIES RECEIVED, INCLUDING ALL THOSE MAILED-IN.

For list of winners (available after 11/30/01) send a self-addressed, stamped envelope by 10/08/01 to: Macworld PriceFinder Surfin' Sweepstakes Winners' List, 301 Howard Street 16th Floor, San Francisco, CA 94105.

Macworld Showcase Featured Advertisers

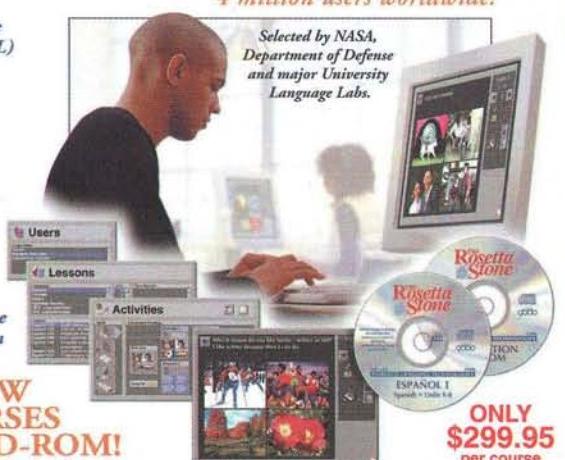
Developer Showcase		Road Tools	roadtools.com	Lazarus	lazarus.com	PowerOn Computers	poweron.com
RoSetta Stone	rosettastone.com	Griffin Technology	griffintechnology.com	Action Front Data Recovery	datarec.com	Shreve Systems	shrevsystems.com
MidiMan	midiman.net	Dr. Bott	drbott.com	Silicon Valley CD	svcd.net	MegaMacs	megamacs.com
CompuCable	computable.com	BellStor	bellstor.com	Modern Postcard	modernpostcard.com	Mac Power	macpowerinc.com
Formac	formac.com	Keyspan	keyspan.com	Creative Juices	bigposters.com	Mac Show	macshowlive.com
Marathon Computer	marathoncomputer.com	IntelliTech	maclabel.com	Postcard Press	postcardpress.com	POS Direct	posdirect.com
Granite Digital	scsipro.com	Gefen	gefen.com	Show and Tell	show-tell.net	Data Tech Remarketing	datatech-rmkt.com
Ratoc	ratocsystems.com	Biomorph	biomorphdesk.com	Copy Craft	copycraft.com	MacResQ	macresq.com
Mace Group	macally.com	Worth Data	barcodehq.com	Presentation Services	imagers.com	PowerMax	powermax.com
Orange Micro	orangemicro.com	Eskape Labs	eskapelabs.com	Direct Showcase		MCE Systems	powerbooki.com
ADS Technologies	adstech.com	Itso	itsco.net	Creation Engine	madaboutmac.com	MacPro	mac-pro.com
FireWire Direct	firewiredirect.com	Services Showcase		Journey Educational Mktg.	journeyed.com	Mac of all Trades	macofalltrades.com
On A Dime	onadime.com	Mac Academy	macacademy.com	AcademicSuperstore	academicsuperstore.com	Mac Solutions	macsolutions.com
Lind Electronics	lindelectronics.com	Microcom	mcrecovery.com	Software Showcase	softwareshowcase.com	Data Memory Systems	datamem.com
iProof Systems	iproofsystems.com	Drive Savers	drivesavers.com	The Camera Zone	thecamerazone.com	Memory Masters	18004memory.com
Photo Control	photo-control.com	Total Recall	totalrecall.com	Abe's of Maine	abesofmaine.com	Mac Solutions	macsolutions.com

For more information contact Niki Stranz or Carol Johnstone at (800) 597-1594.

Spanish
Portuguese
Ingles (ESL)
French
German
Italian
Latin
Russian
Japanese
Chinese
Hebrew
Arabic
Danish
Dutch
Thai
Vietnamese
Indonesian
Korean

36 NEW COURSES ON CD-ROM!

The award-winning Rosetta Stone software combines thousands of real-life pictures with phrases spoken by native speakers in a step-by-step immersion process. Guaranteed to teach faster and easier than any other language software or your money back.



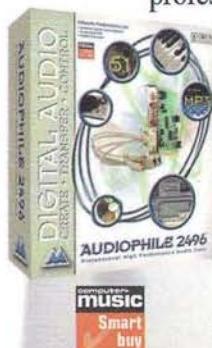
- Each fully interactive multimedia course includes:
- CD-ROMs with 92 lessons, review and comprehensive testing
 - Interactive listening, reading, writing and speaking exercises
 - Speech Recognition/Voiceprint Analysis perfects your accent
 - Curriculum Textbook
- More advanced Level II courses available in most languages.

The World's Largest Language Bookstore
101language.com
1-800-85-AUDIO

THE Rosetta Stone
LANGUAGE LIBRARY
408 S. Pasadena Ave., Dept. MC, Pasadena, CA 91105

Reality Audio

Award-winning audio technology for your Mac from the company music professionals trust: M-Audio.



Computer Music Magazine
says of the Audiophile:
"How does it sound?
Well, in a word, stunning."

Music professionals are uncompromising when it comes to the fidelity and performance of their soundcards. They don't just demand the best; they demand reality.

Now with the Audiophile 2496 you can have that same level of performance in all of your multimedia applications: from hi-fidelity MP3 and internet audio to 24-bit audio recording, vinyl transfers, and even DVDs. If you demand professional quality audio, it's time to get real. Discover what the Audiophile 2496 can do for you. For more information, and to get yours, click on www.m-audio.com/macworld/

M-AUDIO

800-969-6434 • WWW.M-AUDIO.COM • EMAIL: INFO@M-AUDIO.COM

G-Dock-2
Simply the best add-on accessory for G-3 and G-4 computers

onCue
USB Macintosh start up key, a must-have accessory for any Apple Pro Keyboard!

QDock
Provides two powered USB ports, two Geo serial ports, and one ADB port for your iBook

FireXpress CD-RW
IEEE1394 External CD-RW
8 x 4 x 32

FireXpress 250

External IDE/FireWire hard drive conversion kits: easily convert 2.5" and 3.5" IDE hard drive to FireWire interface

FireXpress 350

iDock-2
All-in-one USB swivel base hub for iMacs; provides 4 USB ports, two serial ports, one ADB port, (Floppy drives included)

3-Port IEEE1394 Repeater Hub FX-RH-3 (6 Port also available)

4-Port Stackable USB Hub USB-HUB4BT

iDock Firewire
Monitor swivel base designed for PC and iMac DV/iMac DV Summer with USB and IEEE 1394 Controller

CompuCable
Manufacturing Group
www.compcable.com
Check out our website for free literature
1-800-344-6921

there is more to our name than meets the eye

Shop Formac!

Visit our website for the easiest and most convenient way to buy the best products for your Mac.

www.formac.com



Producers Wanted!

Formac studio™

Best of Show at MacWorld SF!

Convert analog video to high-quality DV

- Hardware CODEC: Capture video full-screen at 30 frames per second with digital audio quality (48kHz @ 16 bit)
- Real-time and frame-accurate editing in native DV
- Input and output for Composite Video (RCA), S-Video, Stereo Audio and two FireWire ports
- Built-in Stereo TV/FM Tuner (NTSC): Convert TV into DV!
- Includes web tools to create web enabled movies
- FireWire interface, hot-swappable and bus powered*



From
\$399

FireWire
FS 1042-0C

Rip, Mix and Burn - with Style!

Formac cdrw™



Only \$289

16X/10X/40X



Only
\$289

FDR 1016-1



Only \$289

- Ultra fast FireWire CD-RW technology
- BURN-Proof technology eliminates buffer underrun errors
- 24X/10X/40X burns complete 650MB disc in less than 4 minutes!
- Quiet: Hermetically sealed enclosure virtually eliminates noise of drive
- FireWire interface: hot-swappable and bus powered*
- Includes Adaptec Toast

High capacity, Low price!

Formac dvDRAM™

The FireWire storage solution

- 9.4 GB on removable cartridges
- Lowest cost per megabyte (less than one cent per megabyte)
- FireWire interface: hot-swappable and bus powered*



Only
\$479

FDD 1094-1



FireWire

Custom ULTRA 160 SCSI LVD - Ultra 100 IDE - Firewire 1394

If you want Ultra SCSI Performance use our Quality Cables & Active Terminators. High Performance Solutions for Ultra100 IDE and Firewire Improves Performance

SCSI Ultra 160 RAID

SCSI Vue™ SCSI RAID Enclosures

Ultra 160 SCSI Towers
2-Bay to 29 Bay



From: \$999

SCSI Vue™ Ultra 160 SCSI Cases



From: \$99

- Ultra 160 LVD Cable Kit
- Dual Hot-Swap Redundant PS
- Hot-Swap SCSI Bays w / Bracket
- 2-3 Fan Bay Coolers w / Brk
- Temp Alarm System

Ultra SCSI Custom Teflon Cable Available

Custom Enclosures in 1 Day for Raid & Arrays

SCSI Vue™ RackMount RAID

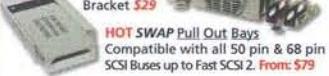
Our 8 Bay Rack Mount Enclosure includes a 250 watt power supply. These cases are commercial quality. Optional rails are also available.



\$399

Bay Cooler Kit keeps those HOT Ultra SCSI Drives COLD at ICE!

Dual Fan & Bracket \$29



HOT SWAP Pull Out Bays Compatible with all 50 pin & 68 pin SCSI Buses up to Fast SCSI 2. From: \$79

From: \$99 Active Digital SCSI Repeater

- Models for all SCSI types
- Fixes SCSI Cable Problems
- Doubles Cable Length (up to 18')



SCSI Vue™ Gold Diagnostic Cables

Benefits:

- No Loss Of Important Data
- Faster Performance
- Test Cable Integrity
- Features:
- Diagnostic Indicators
- Large Ferrite Filters
- Triple Shielding (Unique Design)
- Double Gold 20th Plated Connectors
- Diagnostic Indicators
- Large Ferrite Filters

From: \$39 Extra Heavy 26 Gauge Wire • 100 Styles in Stock

Gold VHD Ultra 160 SCSI Cable

From: \$109



Features:

- New 8mm Ultra 160 LVD SCSI Connector
- Triple Shielding (Unique Design)
- Double Gold 20th Plated Connectors
- Diagnostic Indicators
- Large Ferrite Filters

Benefits:

- Less Errors, Ultimate Performance
- Silver Wire Improves Signal Quality

Features:

- Perfect 90 or 132 Ohm Impedance
- Custom in 1 Day
- Triple Prong Connector - Gold contacts Silver Wire

Granite Replacement Cable for External Drive Cases.

TEFLON TPO

From: \$39

68 Pin Replacement Cable for External Drive Cases.

Online Catalog at... www.scsipro.com

See us at Macworld San Francisco, booth #2010

FireWire RAID

Speed Breakthru...40 MB/s!!!

Fire Vue™ FireWire RAID systems offer up to 480 gigabytes of storage. Using the second generation of FireWire. We are now able to get a true 40MB/s data transfer rate; 3 Times faster than the competition!



480 Gigabyte 8 Hot-Swap Bays

\$3995
Kit



240 Gigabyte 4 Hot-Swap Bays

\$1995
Kit



120 Gigabyte 2 Hot-Swap Bays

\$995
Kit



Our Hot-Swappable RAID Systems offer quick and easy bay interchangability and complete fault tolerance. Each Hot-Swap Bay includes 2 fans and our exclusive Blue Neon Light. Systems can be custom configured to your specific needs. Our RAID Systems use standard IDE ATA100 Drives offering low cost and high reliability. Each system uses Maxtor DiamondMax 60 Gigabyte 7200rpm drives with three year warranties.

Fire Vue™ FireWire 1394 Adapters

These Firewire 1394 Gender Changer and Cable Extenders allow you to use your current cables to extend or change your connector ends. Combined with the added versatility that these devices offer is the ability to also monitor 1394 power. Our exclusive LED circuit lets you know that power is being supplied to the 1394 bus.



\$19.95

Fire Vue™ FireWire 1394 6 Port HUB

These Firewire 1394 HUB / Repeater allows you to connect up to 6 devices. They can also be wired together to offer unlimited capabilities. Power Supply guarantees proper operation of many devices at the same time and rejuvenates the lines.

\$99

Fire Vue™ FireWire 1394 to Cardbus

The perfect solution for any PCMCIA Laptop or Portable computer. This card is both Mac and PC compatible. Gives you two 1394 6-pin Firewire connectors. Supports up to 400Mb speed.

Optional Power Supply

\$99

Fire Vue™ FireWire 1394 to PCI Host

Gives you four 1394 6-pin Firewire connectors. IEEE Standard compliant with auxiliary power connector on card. Supports up to 400Mb speed. Works with Mac OS 8.6 or newer, just plug it in. Also supports Windows 98SE, 2000, and 2000 Server.

\$99

SCSI Vue™ Active Terminator

Ultra-160 LVD
S0C
S8MD
Optional Remote Display
\$39

Seven models available with optional Remote LED Pak. These are the finest terminators available, they fix SCSI problems and improve reliability.

Benefits:

- Improves SCSI Bus Performance
- Less Errors, More Reliable Data Transfer
- Diagnoses Problems • Analyzes Signal Quality

Features:

- Active Regulation • Fast 50 & Fast Wide 68
- Status Indicators • Gold Contacts

Hot Swap Powered Terminator

\$49
Now you can safely remove any SCSI device from a SCSI chain by simply clicking a switch. Optional Power Supply provides termination power to portable setups or when termination 50c power is not being supplied properly.

For Adaptec Ultra Wide Cards

* Adapters with partial termination built in for 68 to 50 converters (converts Host Adapter)

* 80 Pin SCA Drive to 68 Pin (converts SCA to 68 SE or LVD)

Ultra-160

Drive Bus Changer (run 68 pin to 50 pin bus)

68 Pin Drive to 50 Pin IDC (runs wide drive as narrow)

Gender Changer

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or 50 Pin MicroD Adapters

Ultra-160

68 Pin to 50 Pin Centronics or



MacOS X Now!



FireWire to Ultra SCSI Converter **FR1SX**

- Changes your favorite Ultra SCSI device into MacOS X FireWire storage.
- Quick and Easy installation.
- Compact, Just fit to SCSI-II connector.
- Allows true Plug & Play and Hot-swapping.
- Allows booting up from SCSI device.



Other compatible device with MacOS X.

FireWire HD Removable Case **FR-MDK1**



- Hi-Speed, over 30MB/sec sustained Read.
- Compatible with ATA100 UDMA HD.
- Best for DV Editing.

FireWire Desktop HD **FR-HD75**



- Hi-Speed, over 30MB/sec sustained Read.
- Faster than the internal UDMA HD.
- Includes IBM 7200rpm, 75GB ATA100 HD.

FireWire Desktop CD-RW **FR-CW1610**



- iTunes compatible.
- High Speed, 16x Write, 10x Re-Write, 40x Read.
- Works as a repeater even if in a power-off state.

RATOC
Systems, International

See www.ratocsystems.com to learn more information
phone **408-955-9400**

See us at
Macworld NY2001
Booth 2303

macally
iwebkey®

USB Wireless Multimedia Keyboard



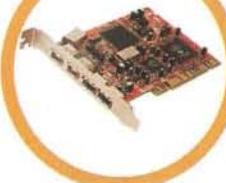
macally™

AirStick



optinet®

PCI FireWire/USB



Macally is proud to bring you the latest USB and FireWire peripherals for Mac users. Our full line of products are specifically designed for your Mac to improve your productivity. Please visit our website to see what Macally has to offer for all your peripheral needs. We work hard to provide you with the best peripherals for your Mac.

Call us for dealers near you 1-800-644-1132 or visit us at: www.macally.com

All trademark or registered trademarks are the property of their respective owners

Circle 159 on card or go to www.macworld.com/getinfo

UPGRADE YOUR MAC WITH FIREWIRE

FireWire Web Cam

iBOT harnesses the speed and power of FireWire unmatched by the slower, fuzzy USB based web cams. With a data transfer rate that's 16 times faster than traditional USB web cams, you'll experience high quality, clear video. The iBOT is great for video teleconferencing, video e-mail, and home movie making with the included software. The pro version has additional software and a microphone.



iBOT

MICRO CENTER
THE COMPUTER DEPARTMENT STORE™

CIRCUITY CITY
ClubMac
(800) 217-9153

Fry's
ELECTRONICS

Info: www.orangemicro.com

Orders: www.1394firestation.com

Orange Micro
inc.

FireWire + USB PCI Board

Check out the slot saving advantages of adding FireWire + USB to your computer with a single OrangeLink+ card. Add two FireWire ports and two USB ports to your computer on one board. This will save you a valuable PCI slot. Take full advantage of the latest technology with IEEE-1394 peripherals and USB devices.



The OrangeLink+ FireWire + USB PCI Board ships with video editing software. With OrangeLink+, you can make desktop movies with your Digital Video (DV) camcorder. Save money and a slot with this great board!

Other OrangeLink FireWire Products

FireWire + SCSI Board 80MB/sec SCSI; includes video editing software and cable

FireWire PCI Board includes video editing software and cable

FireWire CardBus PC Card includes video editing software and cable

FireWire to SCSI Converter connect SCSI through your FireWire ports

FireWire Hub 5 additional ports and cable

FireWire Repeater 15 ft. 1394 extension cable

Grappler+ SCSI+Serial 10MB/sec SCSI and serial and cable

Grappler SCSI Boards 10MB/sec and 20MB/sec SCSI and cable

Circle 61 on card or go to www.macworld.com/getinfo



CONNECT



CREATE



STORE



\$299

DV Editing with PYRO FireWire Host Card
and Full Version Adobe Premiere 6.0



\$149

Convert Your Hard Drive, CD-ROM, CD-RW, or
DVD-ROM/R-RW Drive To FireWire

Available at: Fry's, Safe Harbor, B&H Photo, Video Guys, DV Direct, Mac Zones, Mac Mall, Data Vision, CWOL.com, J&R Music World, Micro Center, and more!

800.888.5244 • 562.926.1928
www.adstech.com



FireWire

Complete FireWire Solutions

Fast • Reliable • Affordable

Storage • RAID • WebCam • Cables • PCI Host Adapters • CardBus • CDRW • DVD-R AI

FirewireDirect offers the most extensive line of FireWire/iLINK components, peripherals and solutions available today. For complete price and product listings, please visit us on the web.

FireWire Storage & RAID

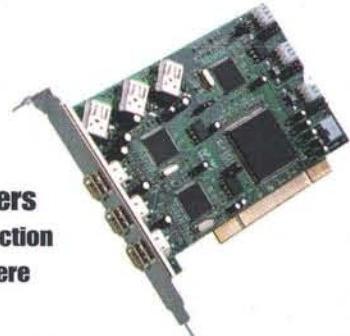


CDRW, DVD-RAM & SuperDrives



WebCams w/ professional video conferencing software

\$99



PCI Host Adapters The biggest selection available anywhere



Reseller and Distributor Inquiries Welcomed.

Tel 512-302-0012 • Fax 512-302-0064 • www.firewiredirect.com

art born, music visualized -live-
as if from the datastream of your imagination

Realtime Creativity

Onadime Composer

© 1998-2001 Onadime.com (c) 1998 Onadime & RT Mitchell

Your own voice
Your own music
live video or canned
Quicktime & MPEG
Full MIDI in & out



Create your own
music visualizations
and interactive art
with the new
Onadime COMPOSER



Download the
Free
OnadimePlayer
and sample
Compositions



not cell by cell
animation
Live
Interactive
Animation

1. "SEE THE MUSIC"
Onadime CD-ROM
2. PlayerPlus for
added features
3. Composer for
realizing dreams



Select from
hundreds
of Onadime
Compositions
on the web



Music Visuals & Creative Software for the Real-Time Digital Arts
www.onadime.com

LIND
Your Essential Source™
Power Accessories for Mobile Computing

When in the Air or On the Road Keep Your PowerBook Powered & Your Battery Charged!

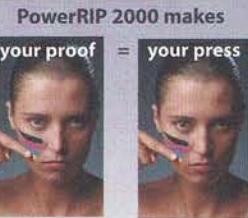
With Lind Auto/Air Power Adapters

Rugged Lind adapters feature:
Low input voltage & output short circuit protection
Internal temperature limit - Automatic fault reset
Nylon carrying case - 3 year warranty
Durable aluminum housing

Adapters in stock now for G4s, G3s & iBooks!
Only \$99.95

Order online at:
www.lindelectronics.com
or Call 24hr/7days a week to order:
#800-897-8994

"Ever wonder if your proof will match what comes off the press?"



With PowerRIP 2000™ and your Epson or HP ink jet printer you no longer have to wonder.

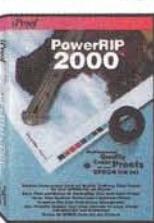
- NEW PowerRIP 2000 Versions 6.0 feature Platinum, Pro or Lite starting at \$147.00. Check our web site.

- Save time and money, before ordering a Cromalin - make your own color corrected pre-press proofs

- Recognizes named spot colors in print jobs, such as PANTONE, and selects the best CMYK match for your printer, ink and paper combination
- Check color traps with the ability to recompose DCS separations
- Accepts custom color matching ICCs
- Network printing capabilities include Chooser level print spooling
- Make proofs and PDFs with one application
- Versions for Macintosh and Windows platforms

PowerRIP 2000 is a PostScript Level 3 compatible RIP (Raster Image Processor) that provides simple, fast, and professional printing results by enabling you to output PostScript to HP and Epson color ink jet printers. PowerRIP 2000 includes color profiles for printer manufacturers' inks and papers as well as iProof's PressProof paper stocks. Industry standard color profiles are provided; however users may add their own custom color profiles if they so choose. Get easy to use

Chooser level printing on the Mac. No need to wait for the printer to finish printing in order to send your next job. PowerRIP will spool jobs into a queue to better manage your production. PowerRIP 2000 includes the ability to compose separated color files into a single color proof. You can easily specify spot colors right at your RIP, a useful option when your job contains multiple spot colors in addition to CMYK. PowerRIP 2000 is available for all Hewlett Packard series 900 and series 1220 ink jet printers, as well as all Epson Stylus Color and Stylus Photo ink jet printers manufactured since 1995.



For G4 PowerBooks! BookEndz DOCKING STATIONS

Booth #369
Macworld
Expo NY



Only \$244.95

Convert your PowerBook to a desktop system in seconds!

- Eliminates cable confusion and damage to connectors.
- Supports all rear panel PowerBook ports.
- Adds only 3" to rear of PowerBook while docked.
- New ejection levers for easier docking & undocking.

www.bookendzdocks.com

BookEndz
Division of PHOTO CONTROL CORPORATION
800-787-8078 or 763-537-3601
E-Mail: beinfo@photo-control.com

Tel: 321-254-4401 Fax: 321-254-6899
www.iproofsystems.com

iProof
SYSTEMS

Peripherals
USB

DEVELOPER showcase

ROAD TOOLS™

PODIUM

CoolPad™

Rock-solid adjustable-tilt pivot base

Increasing the airspace under your laptop will allow better heat dissipation. The adjustable-tilt feature lets you find your own comfort zone. Pivots 360 degrees, guaranteed for life. Available in black or white, \$29.95



Rock-solid support for Ti G4

www.roadtools.com



Works with any laptop, guaranteed for life

STAPLES
The Office Superstore

The original smaller 'Travel' CoolPad™ is also available in all Staples stores. \$19.95

Macworld

Dec. 1999

Made in USA • Patent Pending

iMic
USB AUDIO INTERFACE



The iMic is the ideal audio interface for Macs without audio input capabilities. You can use it to connect virtually any audio device to your USB equipped Mac.* Designed for both the pro and the hobbyist, the iMic provides superior audio input/output quality for microphones, headsets, stereos, turntables, music equipment and more.

*Macintosh with built-in USB port(s) running Mac OS 9.0.4 or greater is recommended.

GRIFFIN
TECHNOLOGY

615.399.7000

info@griffintechnology.com

1619 Elm Hill Pike, Nashville, Tennessee 37210

www.griffintechnology.com

FUTURE RELEASES...COMING SOON!



PowerKnob
USB AUDIO CONTROL

This programmable USB device will provide volume adjustment capabilities for USB Audio and features a click button for endless control possibilities, including power-on.



vSync
VIDEO ADAPTER

The new vSync will allow G4s with the newest video cards to run older monitors.

When one display just isn't enough... **DVIlator for ADC**



With DVIlator and a DVI video card you can add additional ADC displays to a new G4, or upgrade an older Mac with Apple's new flat-panels.

When one computer isn't enough... **MoniSwitch USB**



Share 2, 4 or 8 computers in any combination of Macs, PCs with one monitor, keyboard and mouse.

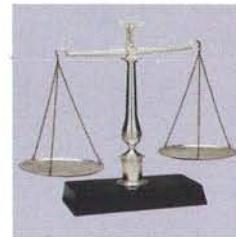


Dr. Bott LTD

www.drbott.com • info@drbott.com
503.582.9944 • 877.611.2688

Read Macworld product **reviews**,

compare products & prices,



and buy smarter.



Now better than ever!

Macworld

PRICEFINDER

review. compare. buy smarter.

www.macworldpricefinder.com



Our new **USB hub** is just **3/8"** thin! Perfect for your PowerBook



This amazing hub offers full desktop functionality in an incredibly thin case.

The hub has four 12 Mbps USB ports, supports both bus-powered and self-powered modes, & includes a built-in USB cable for connection to the PowerBook. Available in silver or black.

Upgrade your G3 or G4 to **USB 2.0**. See our website.



**Macworld Expo
Booth 860**



KEYSPAN

The top
selling brand
of USB serial
adapters!

Keyspan is #1 in USB Adapters!

USB Twin Serial adapter, USB PDA adapter for PalmPilots, & USB Parallel adapter for Epson printers.

(510) 222-0131 www.keyscale.com

Circle 170 on card or go to www.macworld.com/getinfo

DEVELOPER showcase

Bar Code
Furniture
Digital Visual Interface
Multimedia

The Macworld Developer Showcase

Place your ad here. Call today
to reach our active buyers.
1-800-597-1594

Want to Print
Bar Code
Labels?

LABEL PRINTERS
maclabel.com
USB
Ethernet
Appletalk
HP, PC15, LJ110
IntelliTech
INTERNATIONAL
PH: 800-594-3034
iii@intellibar.com

*morph your workspace
with your workstyle*

**biomorph®
interactive desk**

sit-to-stand adjustability!

*call for free ergonomic furniture
catalog 888 302-DESK*

biomorphdesk.com

Show: EXO Desk in Gunmetal finish, \$795.00 Biomorph is a reg. trademark of S. Barlow-Lawson ©2001 Ground Support Equipment (US) Ltd.

Circle 161 on card or go to www.macworld.com/getinfo

Call Us Toll Free 800-345-4220

Broader Selection of Bar Code Products in the Industry

- Technically superior products direct from the manufacturer
- Toll free technical and pre-sale support
- 24-hour turnaround on repairs
- Free UPS Blue shipping in U.S.
- 30-day money back guarantee
- Portable & non-portable Batch Readers
- Cordless interactive RF Terminals
- Wand, Laser, CCD, Magstripe or Slot Badge
- PostScript bar code fonts

or visit our website at



www.BarCodeHQ.com

for a complete catalog and bar code primer



Worthington Data Solutions
is now...



Phone: 831-458-9938 • Fax: 831-458-9964



CREATE, PRINT & READ BAR CODES with new Bar Code Fonts from ITSCO!

- * All popular bar codes
- * Individual or deluxe packages
- * User-friendly
- * Both TrueType & PostScript
- * Designed in the Bear Rock tradition!

CALL 1-800-228-9487

or visit us at www.itsco.net



Ask about our full line of USB-compatible
bar code scanners, printers, and accessories!



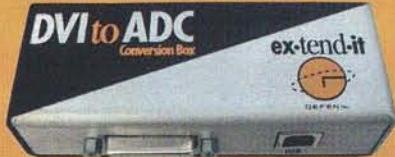
ex-tend-it DVI to ADC Conversion Box Converts DVI to ADC

- Connects an ADC flat panel display to any Mac or PC computer with a DVI output.
- Connects two ADC monitors with a second DVI card.
- Extends ADC monitor up to 25 feet
- Plug and play - installs in minutes
- No loss of quality



Supports the Apple family of
Flat Panel Displays:

22-inch Apple Cinema Display,
15-inch Studio Display, and the
newly introduced 17-inch Studio Display



800-545-6900 fax: 818-884-3108 web: www.gefen.com email: ginfo@gefen.com

My, My...

Eskape
A Hauppauge® Company

631.434.1600
www.eskapelabs.com

"You've got to see it to believe it!"



MyVideo Analog video capture & recordable video output

MyTV Analog video capture & TV reception

MyTV/fm Analog video capture, TV & FM stereo reception

MyCapture II Analog video capture

MyView Desktop video mirroring & recordable movie output

MacWORLD MICRO CENTER

ClubMac Outpost.com i@DEPOT



VISIT US AT MACWORLD NY - JULY 17 - 20, 2001 · BOOTH #1436

Recommended Head Gear For Today's Macintosh User

MacAcademy®



CD-ROM & Video Training Systems

Training Available For:

PHOTOSHOP	MAC OS	POWERPOINT
ILLUSTRATOR	TROUBLESHOOTING	NETWORKING
QUARKXPRESS	ACROBAT	APPLEWORKS
PREMIERE	FILEMAKER PRO	GOLIVE
DIRECTOR	WORD	INDESIGN
WEB DESIGN	PAGEMAKER	EXCEL & MORE



**SPECIAL
\$35.00**

per CD-ROM or Video
when you purchase a set of 2 or more
individually priced at \$39.00 reg. \$59 per volume

Priority Code SP-2396 Offer Expires 9/28/01

CALL 800.527.1914

FAX 386.677.6717

macacademy.com

Visit us at Macworld NY Booth #1441

Circle 175 on card or go to www.macworld.com/getinfo

data recovery
www.mcrecovery.com



When you absolutely, positively
have to get your data back...

- 24hr. Emergency Data Recovery
- Worldwide Services

MICROCOM

20802 Plummer St. Chatsworth, CA 91311 • 818 718-1200

800 469-2549

Macworld

**READERS
NEED YOUR SERVICES**

**ADVERTISE IN THE Macworld SHOWCASE
CALL 1-800-597-1594**

DATA RECOVERY: 800-440-1904

7 good reasons to choose DriveSavers:



1. Fastest, most successful data recovery service available.
2. Recommended and certified by all drive companies to open the drive and maintain the warranty.
3. Advanced, proprietary recovery techniques.
4. 24-hour, onsite, and weekend service available.
5. Retrieve recovered data instantly over secured, high-speed internet lines with DATAEXPRESS™.
6. Featured in Mac-World, Mac Addict, MacWeek, Popular Mechanics; also by CNN, BBC, Forbes, and many others.
7. Federal and State Contracts.



Since 1985
www.drivesavers.com

"We Can Save It!"

Visit DriveSavers @ MacWorld-New York #2402

©2000 DRIVESAVERS, INC. 400 BEL MARIN KEYS BLVD., NOVATO, CA 94949 INT'L: 415-382-2000 FAX: 415-883-0780

Circle 211 on card or go to www.macworld.com/getinfo

SERVICES showcase

Data Recovery
Digital Production
Printing

PROFESSIONAL DATA RECOVERY SERVICE

No Recovery. No Fee.TM

With one of the best success rates in the business, we take every step necessary to get your lost data back. In the remote chance we can't recover the data, there is no cost to you.* As one of the original data recovery companies, Total Recall has the engineering and expertise required to recover your lost data, and we've served over 80,000 customers worldwide since 1989. Total Recall...We Live Up To Our Name!

*See web site for complete details. ©2000 TRPS, LLC

Visit our new website:

- Instant on-line quotes
- Real-time job tracking
- On-line customer service
- Recovery Software

ALL ROTATING MEDIA
MOST OPERATING SYSTEMS

TOTAL RECALL[®]
THE DATA RECOVERY COMPANY™

2462 Waynoka Road • Colorado Springs, CO 80915
(719) 380-1616 • Fax (719) 380-7022

800.743.0594

www.totalrecall.com

96%
RECOVERY
SUCCESS RATE!

Circle 199 on card or go to www.macworld.com/getinfo

Data Recovery in hours.

- Over 10 years of experience with clients worldwide including Apple, NASA, HP, and FedEx.
- We've recovered more than half-a-million megabytes of Mac Data alone.
- You only pay when there's a recovery.
- Express One-Day Service is available.
- Call 24 hours a day.

415-495-5556 • FAX 415-495-5559 • RESTRICTIONS MAY APPLY
381 Clementina Street • San Francisco, California 94103

LAZARUS
DATA RECOVERY

Working at the speed of business.

800-341-DATA

Circle 217 on card or go to www.macworld.com/getinfo

CALL SILICON VALLEY CD

FOR CUSTOM SILKSCREENED BLANK CD-R DISCS, AND...



CD/DVD MANUFACTURING
AND PACKAGING



CD-R DUPLICATION WITH
CUSTOM PACKAGING



BusinessCardCDTM
OPTICAL BUSINESS CARDS

Why use Silicon Valley CD? Listen to a satisfied customer:

Beautiful printing, on-time delivery in a rush situation, friendly and (most importantly) helpful people, a smooth transaction... all for a fair price. I've been a graphics professional for 30 years, but I'm a beginner in CD-ROM publication. So I was relieved to have your experts thoughtfully guide me through the process. I will definitely order from Silicon Valley CD again.

— Marlene Burrell, Partner, April Graphics
June 1, 2001

CALL TODAY!
800-255-4020
WWW.SVCD.NET

FAST Turnarounds
EASY Ordering



ORDER BLANK CD-R DISCS AND
SUPPLIES IN OUR ONLINE STORE!



SILICON VALLEY
CD

since 1992

990 Richard Avenue #103, Santa Clara, CA 95050 Tel: 408-486-0800 Fax: 408-486-0809

EMERGENCY DATA RECOVERY

ActionFront - Data Recovery Labs

"The Data Emergency Specialists™"

- Free Evaluations and Guaranteed Results.
- Specializing in Top Priority, High-End recoveries from network servers, multi-drive systems, (RAID, optical jukeboxes).
- Mac, SQL, Jaz, DLT & DAT tapes.
- Over 10 years of successful recoveries.
- Authorized by hard drive manufacturers.

1-800-563-1167

ACTION FRONT
DATA RECOVERY LABS

Toronto • Atlanta • Buffalo • Santa Clara • Tokyo

www.ActionFront.com

print&mail
full color postcards

Use **Pro Designer™** at
modernpostcard.com
to easily FTP ready-to-print
postcard files or send them
in on a disk.

Plus, our in-house mailing
services can save you time,
money & hassles.

\$95 for 500 postcards

Modern PostcardTM

800-959-8365
modernpostcard.com

© 1999 Modern Postcard. All rights reserved.

**BIG
POSTERS
HUGE
DISCOUNTS**
FROM YOUR COMPUTER FILES

HIGHEST QUALITY PRINTS AT THE BEST VALUE AROUND - STATE-OF-THE-ART EQUIPMENT - UP TO 8000"

24" x 36" 36" x 48" 48" x 72"

Full color print on
7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

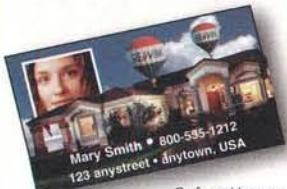
NO MINIMUM
VOLUME DISCOUNTS

7 mil high or low gloss paper

\$25 \$50 \$125

NO MINIMUM
VOLUME DISCOUNTS

SERVICES showcase

1000 Full Color BizCards - \$60!Preferred by over
8,000 professionals!

- Superthick Stock
- Glossy UV
- No film charge
- Friendly Service
- Free Samples

**1000 Color Postcards
\$145**
black imprint on back
FREE!Postcard Press
1-800-957-5787
www.postcardpress.com**Digital Imaging**

Slides & Negatives \$3.75
4x5 Transparencies/Negs \$30
Large Posters & Displays \$45
Scanning: Hi & Lo Res
Kodak Photo-CD Scans
Short Run Color Printing
Show & Tell 39 W 38th St, NY, NY 10018
www.show-tell.net
212 840-2912 212-840-7953 (fax)
jobs@aviltd.com • posters@aviltd.com

219 on card or www.macworld.com/getinfo**SHOWCASE****YOUR SERVICES HERE****- CALL TODAY -
1-800-597-1594****Get A Free Sample****Printed From Your File**Go to www.imagers.com/macw... Discover the excellent print quality of our newest and very improved Indigo Ultra digital color press!**We Guarantee Our Quality!****Digital Services!**

Offset CMYK Color Printing
Large Format Color Posters
Hi-Res Film Scans To CD
Color Laser Printing
Digital Photographic Prints
Slides/4x5-Neg, Pos, B&W

- INSTANT Online Quotes
- OVERNIGHT Services
- Submit Jobs Online
- Expert Tech Help
- A Price You'll Like!

We Use... Advanced technologies for the best results!

**Go online**info, quotes, & job submittal
www.imagers.com
IMAGERS®
Since 1947
Monday to Friday 8:00am to 8:00pm
East Coast Time800.232.5411 or 404.351.5800
1575 Northside Dr. Ste.490 Atlanta 30318Circle 155 on card or go to www.macworld.com/getinfo
COLOR FROM YOUR FILES
FEATURING 300 LINE SCREEN
WATERLESS OFFSET PRINTING
**1000
FULL COLOR BUSINESS CARDS
\$100**
Printed from your computer files
on 10 pt CIS KromeKote with
FREE aqueous coating.Printed from your computer files
on 10 pt CIS KromeKote with
FREE aqueous coating.
**1000
FULL COLOR POST CARDS
\$149**
BUSINESS CARDS**POSTCARDS****CD INSERTS****CD TRAY LINERS****BROCHURES****BOOKLETS****NEWSLETTERS****POSTERS****WHY COPYCRAFT?**

Waterless Printing
300 LPI Resolution
Technical Expertise
Attention to Detail
Laser-Fast Quotes
Award-Winning Art
Economical Pricing
Service, Service,
SERVICE!

TABLE TENTS**MENUS****LETTERHEAD****ENVELOPES****FLYERS****CALENDARS****FOLDERS****STICKERS**
SPECIAL!!!
 16-Page 8.5x11 Booklets
 1000 for \$2,797 suggested retail: \$3,636
 2500 for \$3,304 suggested retail: \$4,295
Booklets are printed 4-color process from your
computer files on 80# Gloss Text with FREE
Aqueous Coating.Visit www.copycraft.com for our MONTHLY SPECIALS, or order a catalog at request@copycraft.com
copy craft

PRINTERS, INC.

4413 82nd Street • Lubbock, TX 79424 • FAX: 806.798.8190

1.800.794.5594

Se habla Español • Professional Graphic Art Available

Circle 223 on card or go to www.macworld.com/getinfo

DIRECT showcase

Education

**SELLING DIRECT?
SELL MORE
WITH AN AD IN THE**

Macworld SHOWCASE

**CALL NOW
1-800-597-1594**



ACADEMIC DISCOUNTS on CREATIVE DIGITAL TOOLS



Macromedia Flash 5 \$99



Animation:Master 2001 \$199



Microsoft Office 2001 \$Call



Synthetik Studio Artist 1.5 \$229



Wacom Graphire \$89



Media 100 Cleaner 5 \$299



FileMaker Pro 5.5 \$149



Macromedia Dreamweaver 4 \$99

www.creationengine.com

**Students, Teachers & Schools
Save 30-70% off Software!**

Use promotional code "macworld" on your
online order to receive a free mousepad!

Easy secure online ordering!
Orders processed within 24 hours!
Explore our web site for product info,
academic prices, reviews, tutorials,
art gallery, quote builder, site licensing,
specials & more!

www.madaboutmac.com

Macintosh resources for teachers and students!



www.creationengine.com

CREATION ENGINE™ LLC

348 East Middlefield Road, Mountain View, CA 94034 Phone: 800.431.8713 Fax: 650.934.3234

We offer software from over 100 companies including Adobe, Alien Skin, Corel, Hash, Macromedia, Microsoft, Newtek & Symantec

STUDENTS

**Save up to 75% OFF
popular software!**

**Thousands Of Titles
Available!!**



Adobe
Microsoft
Discreet
MetaCreations
Macromedia
Alias/Wavefront
Softimage
Autodesk
Extensis
Alien Skin
Digimation
Symantec
Corel
ADAM
Wacom
Many More!

FREE CATALOG!

Serving Students and Schools Since 1990

1-800-874-9001

www.JourneyEd.com

Journey Ed

Education Marketing

Offer for U.S. & Canadian degree-seeking students only.

Proof of student status required with order.

174 on card or www.macworld.com/getinfo

ACADEMIC DISCOUNTS

*Great Savings for...
Students, Teachers
and Schools!*



Nemetschek's Vectorworks 9
The latest CAD software at an
unbelievable student price! **\$82**

MACWORLD Special

New! Amorphium Pro \$139

This new version from Electric
Image now creates 3D graphics
in the .SWF format, made
popular by Macromedia's Flash!

All Adobe Titles	Call	EI Universe 3	NEW \$449	All Microsoft Titles	Call
Boris FX 5	\$309	Filemaker Pro 5.5	\$148	Norton Utilities	\$59
Bryce 4	\$139	Flash 5	\$98	Painter 6	\$199
Coda Finale 2001	\$199	Flash + Freehand	\$139	Poser 4	\$119
Director 8.5 NEW	\$329	Freehand 10 NEW	\$98	Sibelius	\$229
Dreamweaver 4	\$98	All Iomega Titles	Call	TechTool Pro 3	\$79
Dreamweaver 4 +		Lightwave 6.5	\$889	Wacom 6x8 Tablet	\$284
Fireworks 4 Studio	\$139	MacAcademy Titles	\$32	webSavant	\$119
EyeCandy 4000	\$69	Mathematica 4.1	\$136	(PC titles available!)	

Visit us online for more savings, specials,
bundles and 24hr. ordering!

CALL FOR YOUR FREE CATALOG

1-800-333-8571 FAX ID'S & PO'S TO
512-450-0263

www.AcademicSuperstore.com

**ACADEMIC
SUPERSTORE**

Circle 180 on card or go to www.macworld.com/getinfo

Savings for Students & Teachers

Up to...

80% Off

We will beat any advertised price!!

Code Final 2001.....\$249

CodeWarrior Pro R6.....\$119

Dramatica Pro 4.0.....\$119

Dreamweaver 4.0.....\$99

Dreamweaver UltraDev.....\$149

EyeCandy 4000.....\$79

Freehand 10 Flash 5 Studio.....\$119

Freehand 10.....\$99

Genuine Fractals 2.0.....\$129

Hollywood Screenwriter 3.....\$49

HomeStudio 9.0.....\$69

Lightwave 3D 6.5.....\$889

Mathematica 4.1 Student.....\$139

Mask Pro 2.0.....\$169

Poser 4.0.3.....\$125

Screenwriter 2000.....\$119

Sharpener Pro.....\$229

TechTool Pro.....\$85

Ulead Video Studio 5.....\$69

Wacom 4x5 Graphire Tablet \$99

(800)699-1836

Visit our WebSite for \$10 Off online orders.

Software Showcase Inc.
1775 Rt 34 South D#12
Farmington, NJ 07727
Phone # (732) 556-0400
Fax# (732) 556-0408
info@softwareshowcase.com

Mon-Fri 8-7 Est Sat 10-3

www.softwareshowcase.com

Circle 174 on card or go to www.macworld.com/getinfo

AOL KEYWORD camerazone



WE ACCEPT ALL SCHOOL, and GOVERNMENT BIDS & PO's!!

24 HOUR FAX: 718-491-4418

Local: 718-491-4408

140 58th Street Suite 4E
Brooklyn NY 11220

Company Hours

Sunday 10am - 6:00pm
Monday-Thursday 9am-8pm
Friday 9am-5:00pm
Saturday Closed

CALL TOLL FREE 1-888-596-4716

ORDER ON LINE AT www.cameraszone.com

Digital Cameras

OLYMPUS



C-3040

- 2048x1536 Max Resolution
- 3.34 Million Pixel CCD
- 16 Mb Smart Media
- One Touch White Balance
- Multi Spot Metering

C-700

- 1600 x 1200 Max Resolution
- 8MB Smart Media
- 10x optical/2.7x digital zoom
- Auto exposure bracketing
- Burst / Movie modes
- 2.1 mega pixel CCD

C-2100Z

- 10x Image Stabilized Optical
- 2.7x Digital Zoom
- 3 Frame Per Second Burst Mode
- 5 Program Modes
- Spot & Multi Spot Metering
- SLR-Like /2.1 mega pixel

E-10

- 4.1 Mega Pixel
- Holds SmartMedia & Compact Flash card 2
- 35-140mm Lens
- Fully Multi-coated glass optics

C-3000.....Call	C-2040.....Call
C-2500L.....Call	D-100.....Call
E100RS.....Call	D-150.....Call
C-211.....Call	

Nikon



Coolpix 995

- 2048 X 1536 Minimum resolution / swivel lens
- 4X Optical / 4x digital zoom
- 16MB Compact Flash 1 & 2
- 1.8" LCD Monitor
- Burst / Movie modes
- 3.3 Megapixel



Coolpix 775

- 2.1 Megapixel CCD
- 1600 x 1200 True Resolution
- Incredible print quality
- 8 MB Compact Flash

New D1/D1X Pro Digital SLR.....Call
Coolpix800.....Call
Coolpix990.....Call

Kodak



DC-5000

- 2.1 Megapixel CCD
- 1760 x 1168 resolution
- 2X optical / 3X digital Zoom
- 1.8 TFT color LCD to give you excellent detail for your pictures
- Rugged Body Design oversized controls for easy handling



DX-3500

- 1800 x 1200 Maximum Resolution,
- 2.6 Mega Pixel
- 3x Digital Zoom
- 8MB Compact flash,
- 1.8"LCD Monitor

DC-5000.....In Stock	DC-240.....In Stock
DC-3400.....In Stock	DC-280.....In Stock
DC-215.....In Stock	DC-290.....In Stock

All merchandise is brand new & carries a Full USA or International Warranty. Our 14-Day Satisfaction Guarantee allows for exchanges on products or returns for credit. All returns for credit are subject to a minimum 10% restocking fee, 20% restocking fee for special orders. Shipping & Handling charges are non-refundable. All returns must be returned in original mint condition. Not responsible for typographical errors. Above prices supersede all others and remain in effect until next month's issue. * Indicates price after rebate.

DIGITAL VIDEO

SONY



MVC-CD300

- 2048 x 1536 Max Resolution
- 3x Optical / 6x Digital zoom
- 2.5" LCD Monitor
- 3" CD-RW disk storage
- 4 Program modes Movie & Voice modes

DSC-P1

- 3.3 Megapixel
- 2x Optical/3X Digital Zoom Lens
- 1.5" LCD Screen
- Underwater Housing
- Exclusive new GIF animation feature

DSC-S75

- 3x Optical Zoom
- 3.34 Million Pixel CCD
- 8MB Memory Stick
- HQ Movie Mode
- 2" Color LCD
- Spot Metering
- Variable ISO

Canon

Powershot S-110 Zoom

Digital Elph

- 1600x1200 Resolution
- 1.8" TFT LCD Display
- 2X/AX Digital Zoom
- Built-in flash
- Built-in high-speed USB interface

Powershot G-1

- 1600x1536 Resolution
- 3.34 Megapixel
- 2X/AX digital zoom
- Built-in flash
- Built-in high-speed USB interface

EOS D-30

- 3.11 Million Pixel Resolution SLR
- 5 Frames Per Second
- Histogram Displayed w/Each Shot
- 13 Custom Function
- Easy Controls
- High Quality Still Images

Powershot S300

Powershot A10.....Call

Powershot A20.....Call

FUJIFILM

FINE PIX 4900

- 2.4 Megapixel Super CCD
- 6x Aspherical Zoom Lens
- 1/4 to 1/2000 sec Shutter Speed
- TTL 64 Zone Metering

FINE PIX 6800

- 3.8-6.8 Million Megapixel
- 5 Frames Per Second
- USB Hot Sync
- Video Conferencing
- 2832 x 2128 Max Resolution

FINE PIX 40i

- Ultra compact metal body
- 2.4 million pixel 1" USB Port
- Plays MP3 Audio
- Available in Metallic Silver or Blue

Finepix Z300.....Call

Finepix 2400.....Call

PRINTERS

EPSON



Stylus Photo 2000P

- Professional, Archival quality fine art photo printer
- w/1440x720 PI resolution, print sizes up to 13" x19"
- panorama to 13"x44"
- Print life rated at 200 years. Includes roll paper holder.

\$100 Rebate Available
Call for Information

Stylus Photo 1280

- 2880x220 DPI premiere photo printer.
- Quick drying inks for stunning prints to 13"x19". Border free printing.
- 6 color inks and panoramas up to 44". 4 picoliter dot size. Includes Qbeo Photo Genetics & Epson Film Factory

Stylus Photo 890.....Call

OLYMPUS

P-330N



P-400

Scanners

Nikon



Coolscan 4000ED

- 4000 DPI film scanner with fast 38 second scan time!
- 4 Dynamic range highest of any desktop scanner. Multi Scan feature produces drum scanner quality
- Firewire IEEE 1394 interface. Color management system. • Digital ICE, ROC, and GEM image enhancement technology. • Uses RGB, CMYK and Lab Color spaces. Includes full version of Alumira Genuine Fractals software

Coolscan IV ED.....Call

Coolscan 8000ED.....Call

MINOLTA

Dimage Scan Elite

- Scans both 35mm sleeves and mounted, positive and negative films in color and black & white
- Optional Apis adapter is available
- 2.620 dpi optical resolution
- 3.6 wide dynamic range
- 12-bit Ad. Conversion producing 32-bit color
- Digital ICE correction Enhanceme
- Adobe Photoshop LE included
- Available for Mac and Windows

New Scan Dual II.....Call

New Scan Multi II.....Call

Canon

Canoscan FS 4000

- New affordable 4000 DPI film scanner. • Uses Xenon lamp light source. • USB and SCSI interfaces. • Creates 42 bit scans for 35mm and APS film. • Canon "FARE" automatic dust and scratch removal. • Fast 48 second scan time and 3.4 dynamic range. • Includes Adobe Photoshop LE

Canoscan 2710.....Call



OPEN HOURS
Mon.-Thurs. 9:30AM-10:30PM
Friday 9:30AM-5:30PM
Saturday Closed
Sunday 10:00AM-7:00PM

CARDS ACCEPTED
Orders and inquiries can now be E-Mailed to us at: info@abesofmaine.com

1-800-231-2237

www.abesofmaine.com

SONY MAVICA MVC-FD75

- 2.5" LCD Screen
- 10X Optical Zoom
- Records on Floppy Disk

Call or Visit
www.abesofmaine.com



CALL

SONY MAVICA MVC-FD92

- Clip Motion Animation
- Memory Stick Direct
- 8X Optical Zoom

Call or Visit
www.abesofmaine.com



CALL

SONY DSC-P50

- 2.1 Megapixel Camera
- 3X Optical Zoom
- 6X Digital Zoom
- 1.5" LCD Screen

Call or Visit
www.abesofmaine.com



CALL

SONY DSC-F505V

- 1600x1200 Resolution
- 3.3 MegaPixel Camera
- 2" LCD Screen

Call or Visit
www.abesofmaine.com



CALL

NIKON COOLPIX 995

- 3.34 Mega Pixel
- 2048x1536 Resolution
- 4X Optical Zoom
- 1.8" LCD Monitor

Call or Visit
www.abesofmaine.com



CALL

OLYMPUS D490Z

- 2.11 Mega Pixel Resolution
- QuickTime™ Movie Mode
- 3X Optical Zoom
- 2X Digital Zoom

Call or Visit
www.abesofmaine.com



CALL

CANON POWERSHOT G1

- Memory options to 340MB
- 3.3 Megapixel Camera
- 3X Optical Zoom
- 12 Shooting Modes

\$679⁹⁹



CALL

CANON POWERSHOT S-110 DIGITAL ELPH

- 2.1 Megapixel Camera
- 2X Optical Zoom
- Smallest 2 Megapixel

CALL

We Carry A Full Line of Laptops,
Accessories, and PDA Organizers.
Please Call for Information or
Log on to www.abesofmaine.com



CANON POWERSHOT S-20

- 3.3 Megapixel Camera
- 2X Optical Zoom
- 1.8" LCD Screen

\$449⁹⁹



800-673-MACS

916-677-6227

fax 916-677-6228

800-673-6227

WE SHIP ANYWHERE IN THE WORLD. CHECK OUT OUR WEEKLY WEB SPECIALS - <http://www.poweron.com>

PowerMac 5260

2MB RAM • 1GB HD • CDROM
ETHERNET • Floppy Drive
Keyboard • Mouse
Built-in Color Monitor



\$149⁹⁹

COMPLETE LAB PACKS

Includes: Computers, Monitors, Ethernet Cards, Cables, Hubs, and Network Printers

10 station lab \$1,999

PowerMac 6360

Includes:
14" Color Monitor & ETHERNET Card



\$189⁹⁹

Educational Pricing Available

Apple Compatible HARD DRIVES

Includes FREE Hard Drive Utilities

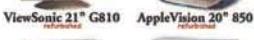
9GB 3.5" x 1.6" SCSI 50 pin \$129⁹⁹

4GB 3.5" x 1.6" SCSI 50 pin \$89⁹⁹

2GB 3.5" x 1" SCSI Wide w/50 pin \$69⁹⁹

MONITOR DEALS

INREDIBLE DEAL!
\$329⁹⁹



ViewSonic 21" G810

\$299⁹⁹



AppleVision 20" 850

\$129⁹⁹



Apple 17" MultiScan

\$239⁹⁹



Apple 20" MultiScan

CDROM DEALS

12x 1800i SCSI \$79⁹⁹



External SCSI CDROM Cases (N) .39.99
4x Apple SCSI CDROM39.99
8x Apple SCSI CDROM59.99
12x Apple SCSI CDROM79.99
24x Apple SCSI CDROM129.99
24x IMAC CDROM-Tray loading99.99
6x Apple DVD ROM ATAPI169.99
CDROM Installation Kits.....IN STOCK

Apple Compatible MODEMS

56k v.90 External \$69⁹⁹

PCMCIA 28.8/33.6bps modem \$29⁹⁹

PCMCIA 28.8/10BT Ethernet \$89⁹⁹

PCMCIA 56k v.90 modem x-jack \$89⁹⁹

WE SELL... ETHERNET for DSL/CABLE MODEMS

PRINTER DEALS

Apple LW 16/600PS

SERIAL & ETHERNET Laser Printer
600 dpi 17 ppm \$399⁹⁹

LW 16/600 Tenor only \$49⁹⁹/purchase

CANON BJC2100 USA \$54⁹⁹

HP 1600CM SERIAL & ETHERNET \$129⁹⁹

EPSON 850NE SERIAL & ETHERNET \$179⁹⁹

Refurbished (Toner w/some models, CALL for details)

Mac OS 8.5 CD FREE WEB UPGRADE TO 8.6

\$79⁹⁹

OEM/FULL INSTALL

Mac OS 7.6 CD \$39⁹⁹

OEM/FULL INSTALL

Mac OS 8.0 CD \$49⁹⁹

FULL INSTALL

Mac OS 9.0 CD \$99⁹⁹

FULL INSTALL

INK CARTRIDGES & TONER

1000's Available
See Our Web Catalog

ORIGINAL PARTS

Macs, PowerComputing, UMAX, Motorola

All brand or product names are registered trademarks of their respective holders and are respectfully acknowledged.

www.poweron.com

sales@poweron.com

Check Out Our Complete Inventory Online

PowerON

Computer Services

**Gov't & School PO's Accepted
CALL for EDUCATIONAL Quotes**

All Prices include 3% cash discount. All items are Used or Refurbished unless otherwise indicated. ALL SALES FINAL.
90 day PowerON warranty. Mit warranty may be available on certain items. Call for details.

Circle 198 on card or go to www.macworld.com/getinfo

WE BUY MACS AND MAC STUFF

(318) 424-9791

SHREVE SYSTEMS

For all of this and more-check out our website!
<http://www.shrevesystems.com>



WE STOCK MAC PARTS!

1-800-227-3971

1200 Marshall st
Shreveport, LA 71037

Firewire Full Height Drives

20/30 GB available!

Call for best prices!



iMac DV's ON SALE!

Different Colors available!

Factory Refurbished / 90 Day Warranty

AS LOW AS \$749

CALL!



**1.44 SuperDrives
STARTING AT**

\$19!

PART #
661-0474

NO EXCHANGE REQUIRED!

MacintoshLC580 Internet Ready!

- 33-MHz MC68LC040
- 8MB of RAM
- 800MB Hard Drive
- 28.8 Motorola Modem



\$199 with internal 4XCD

ONLY \$149

NEW! 7200 Logic Boards

ONLY \$29

MacAlly Extended Keyboard

NEW!



\$19



NEW!

\$49

Genuine Apple ADB Mouse II

Generic ADB Mouse ONLY \$29

Monitor Blowout!



ONLY \$79!

Apple 13"
Trinitron RGB
Factory Refurbished



**PowerComputing
17" Monitor**

**ONLY
\$149!**

Factory Refurbished

Don't Miss Out!



**AS LOW AS
\$49!**

NEW!

**Voxon 14" and
15" Monitors**

See our line items below for other
monitor blowout specials!

We also specialize in digital audio recording! Call for the best prices on Alesis, Akai, Tascam, Digidesign, Roland, Korg, Mackie, Behringer, Line 6, Boss, and Mark of the Unicorn!

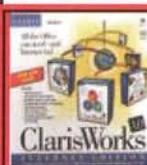


AS LOW AS \$699

Now Includes a FREE 2GB Hard Drive!

AKAI DPS 12 v2

Check out our website at www.shreaveaudio.com



**ClarisWorks 4
Internet Edition**
**ONLY
\$39!**
NEW!

System Bundles SALE!

7100/60	5200/75	4400	5300/100	7300/200	PowerCurve 120	7200/75
24/350/CD/13" Monitor	8/500/CD/15" Monitor	32/2GB/CD	16/1GB/CD	32/2GB/CD	0/0/0	0/0/0
\$199 refurbished	\$199 refurbished	\$399 refurbished	\$399 refurbished	\$399 refurbished	\$99 refurbished	\$149 refurbished

PRINTERS

MACINTOSH LOGIC BOARDS		MONITORS		NUBUS ADAPTERS	
HP Deskjet 890 CM, NEW	\$249	G3 logic board, No Processor, No ROM	\$299	Apple 14" A/V refurbished	\$129
Apple StyleWriter 1200,	\$129	7200/90 logic board, refurbished	\$149	Apple 14" Multiscan, refurbished	\$99
Apple Stylewriter 1500, factory refurbished	\$149	LC logic board, refurbished	\$49	Apple 15" Multiscan, refurbished	\$119
Apple StyleWriter 2400, no cartridge, refurbished	\$99	LC II logic board, refurbished	\$89	Apple 15" AV, factory refurbished	\$199
LaserWriter II, toner not included	\$149	LC II logic board, refurbished	\$99	Apple MultiScan 17", refurbished	\$179
LaserWriter II w/5MB RAM, refurbished	\$399	Mac LCIII logic board, refurbished, exchange	\$99	Apple 20" Multiscan, refurbished	\$599
LaserWriter II w/5MB RAM, refurbished	\$549	Perma 630 logic board, No Processor, refurb	\$49	Radius IntelliColor/20e, factory refurbished	\$99
Texas Instruments Micro Laser Pro E NEW	\$449	Qudra 950 logic board, refurbished	\$179	Voxon 14" Multiscan NEW	\$69
Laser toner cartridges sold separately		7100/66 logic board, refurbished	\$99	Voxon 15" Multiscan NEW	\$99
		6200/75 logic board, refurbished	\$99	Power Computing 15" refurbished	\$119
		7100/66 logic board, refurbished	\$99	Power Computing 17" refurbished	\$149

IMAGING PRODUCTS

APPLE PC COMPATIBILITY CARDS		VIDEO CARDS	
Apple QuickTake 150 refurbished	\$149	Pentium 100-MHz, refurbished	\$149
Apple QuickTake 100 refurbished	\$99	Pentium 166-MHz, 12" PCI card, refurbished	\$199
		15% restocking fee. Not responsible for typographical errors.	
586 100-MHz, 7" PCI card, refurbished	\$99	All trade-ins MUST BE in working condition. Refurbished systems may include like-new components and may also include cosmetic blemishes which do not functionally impair performance of the hardware.	
486 66-MHz for 6100 series, NEW	\$29		

1 • 800 • 227 • 3971

Prices reflect a 2% cash discount and are subject to change without notice. Returns are subject to a 15% restocking fee. Not responsible for typographical errors.

www.shrevesystems.com

DIRECT showcase

Systems & Peripherals
Point of Sale

Our Readers are Your
Target Customers

Sell More in the Macworld SHOWCASE

Call 1-800-597-1594

MEGA MACS.COM

iMacs/iBooks/G3/G4 (preowned) from \$499
NetBarrier/2 NortonAntivirus/Utilities \$29/14/9
Logitech Soundman X2 Speakers \$49
Office 4.2/2001/ Freehand 8 \$59/399/\$49
Epson850NE(network)/700/670 \$179/109/75
OmniPage/OS8.5/8.1/7.6 \$29/69/49/39
ADBMouse/Keyboards/QuikCamVC \$12/15/29
GlobalVillage 56k Fax Modems from \$39
FUJI 100MB ZIP 3pk (after mfr rebate) \$24
IBM 15 inch Flat Panel Pivot Monitor \$599
Business PlanToolkit V.7/WebSavant \$44/69
Apple 17inMonitor/LWPRO 630 \$105/229
RicohCDRW/Apple4X/8XCD \$149/19/49
RayDreamStudio5.5orTimbuktu \$59
Ram Doubler/ConflictCatcher 8 \$24/59

Get FREE software with orders placed on our website
**WE BUY
918-664-MACS** (6227)
fax: 918-663-6340 Price rounded down, credit cards ok

Mac POWER

Sales & Service, Inc.

BUY • SELL • TRADE

UPGRADE • REPAIR

New • Used • Refurbished

- Powerbooks • Monitors
- PowerMacs • Printers
- Performas • Peripherals
- Quadras • Ram
- MacII-LC • Parts

www.macpowerinc.com

888-275-POWER

Fax: 408-448-6132

San Jose, California, 95123

Listen Different

www.macshowlive.com

Every week, we're
streaming live,
interactive,
and talking...



100% Mac!

- News • Basics • Gaming • Mac Pro • Tech. Tips •
- Feature Interviews •

listen anytime @ macshowlive.com

POINT OF SALE • INVENTORY CONTROL

Software & Hardware for:



www.posdirect.com

(800) 622-7670 • sales@posdirect.com
(618) 985-8237 vox • (618) 985-3014 fax

Fully Integrated Accounting
Multi-Site • Cross Platform • Receipt
Printers • Barcode Readers/Printers • Cash
Drawers • Mag Stripe • Ribbons • Paper •
Labels • Developer Integration Support
New Visor Laser Scanners
Touch Screens



New Free CD Rom
v.4.0 Now Shipping

Circle 165 on card or go to www.macworld.com/getinfo

Save on Reconditioned Macs & Peripherals

G3 POWERMACS

DT/233 32/4G/CD.....	\$499	7200/120 16/1G/CD	\$149
DT/300 32/4G/CD.....	\$599	7300/200 32/2G/CD.....	\$329
MT/266 32/6G/CD/AV/.....	\$649	7500/100 16/1G/CD.....	\$219
MT/300 64/4G/CD/Zip.....	\$699	7600/132 16/1G/CD.....	\$219
MT/333 128/9GUW/CD/Zip.....	\$899	8500/120 32/1G/CD.....	\$249
CD/Zip.....	\$899	8500/180 32/2G/CD.....	\$329
POWERMACS		8600/200 64/4G/CD.....	\$399
4400/200 32/2G/CD.....	\$199	9500/132 32/2G/CD.....	\$279
7200/90 16/500/CD.....	\$129	9600/300 64/4G/CD.....	\$699

All CPUs include mouse

MONITORS

14" Apple Color Plus.....	\$79
14" Apple Trinitron.....	\$99
15" Apple MultiScan.....	\$99
15" Apple MultiSync AV.....	\$129
17" Apple MultiScan.....	\$129
17" 1705 Display.....	\$129
17" 1710 AppleVision.....	\$139
17" Apple ColorSync.....	\$159
20" Apple MultiScan.....	\$299

POWERBOOKS

540c 12/320	\$199
5300c 16/750	\$299
1400c/133 16/1G/CD.....	\$499
3400c/200 16/2G/CD.....	\$599
G3/233 32/2G/CD.....	\$949
G3/333 64/4G/CD.....	\$1399

TO ORDER CALL

1-800-281-3661
or www.datatech-rmk.com

DataTech
REMARKETING, INC.

Tel: 615-860-4422
Fax: 615-860-0390
471 Myatt Dr., Madison, TN 37115

6-Month Warranty
VISA & MasterCard accepted

Corporate names and trademarks are the property of their respective owners.

macs for rent
from DataTech Remarketing
call 1.800.281.3661

MQ
Mac-Res-Q
sales@macresq.com
(925) 689-9488 • (925) 689-9487 fax

PowerBook 1400 Blowout!

All different
shapes & sizes
available

from only
\$399⁹⁹



All items are refurbished unless noted as new. Pricing & availability subject to change. 15% restocking fee on functional returns. No returns after 30 days.

888-447-3728

More than 4000 Macintosh products & secure online ordering @
www.macresq.com

Circle 191 on card or go to www.macworld.com/getinfo

Call the Mac Experts!

Your one-stop source for Apple® Macintosh® - New, refurbished and used: thousands of different items in stock every day! It's pretty simple: we know a lot about Mac® stuff, and we care about our customers.



Indigo iMac™ 400
64 RAM, 10 Gb HD, CD, 56k

\$795



G4/500 DUAL
256 RAM, 40 Gb HD, DVD-RAM, 56k

\$2149



G4/450 128 RAM, 20 Gb HD, DVD-ROM, Zip drive, 56k

\$1399



Graphite iBook™ 466
64 RAM, 10 Gb HD, DVD-ROM, 56k

\$1188

Factory
Refurbished Specials

"Check out our
'PowerMax-imum' Bundles!"



G4/500 Dual w/ 256 mb RAM, 40 Gb drive, DVD-RAM drive, 56k Modem and a 17" Apple Graphite display all w/one year warranty.
Add a 22" Cinema display for only \$2150 more!

\$2549

LACIE

Pocket CD-RW
FireWire & USB \$388

24x10x40 FireWire
Drive \$379

New!

Electron 19
Blue II
Display \$599

10 Gb
FireWire/
USB Pocket
Drive \$309

JVC
JY-VS200U
Pro DV Cam
\$1988

JVC
New!



We just bought hundreds of pre-owned Macs!
We load 'em with RAM & guarantee 'em! Great price/performance!

Model.....	Starting At
6100 series.....	\$68
7100 series.....	\$88
7200 series.....	\$129
8100 series.....	\$145
7500 series.....	\$196
7600 series.....	\$241
8500 series.....	\$249
9500 series.....	\$295
7300 series.....	\$343
8600 series.....	\$597
9600 series.....	\$646
PowerBook® G3's.....	\$946
PowerBook® G3/400's.....	\$1579
iBooks.....	\$949
iMacs.....	\$567
Blue & Wh G3 Towers.....	\$898
G4/450 Graphite Twrs.....	\$1394
G4 Cubes.....	\$1042

This month's product focus:
G3 PowerBooks!

G3/233 32/2/CD/56K/12.1".....	\$446
G3/233 32/2/CD/56K/12.1".....	\$965
G3/250 48/5/CD/FD/12.1".....	\$998
G3/233 32/2/CD/56K/14.1".....	\$1,187
G3/250 64/4/CD/FD/13.3".....	\$1,366
G3/266 64/4/CD/14.1".....	\$1,388
G3/266 64/4/CD/14.1".....	\$1,398
G3/292 64/8/CD/FD/14.1".....	\$1,473
G3/333 64/4/CD/56K/14.1".....	\$1,542
G3/300 192/8/CD/14.1".....	\$1,547
G3/400 64/6/DVD/56K/14.1".....	\$1,606
G3/500 128/12/DVD/56K/14.1".....	\$1,949
G3/500 256/12/DVD/56K/14.1".....	\$1,998

Add a postscript LaserWriter for only \$199!

Canon Authorized Reseller

Canon ZR-25.....\$699
Canon Elura 2.....\$999
Canon Optura Pi...\$1099
Canon GL-1.....\$2149

"Did you know PowerMax has a unique website dedicated to nothing but digital video? Check out www.powerdv.com/!"

Factory Refurbished units include 1 year warranty

Indigo 400 iMac™ w/ 128 mb RAM, 10 Gb drive, CD-ROM and a factory refurbished Umax USB scanner all w/one year warranty.

\$899

POWER MAX
Knowledge is Power

800-613-2072

Local: (503) 624-1827 • Fax (503) 624-1635
email: sales@powermax.com

Prices subject to change without notice. Prices reflect cash discount. Credit card orders strictly verified against fraudulent use. With use of credit card as payment customer acknowledges that some products are subject to final sale. Many prices are limited to stock on hand. All brand or product names are registered trademarks of their respective holders.

• Personal Financing • Fast P.O. Approvals • Business Leasing • Weekly specials on our web site • Order on line or call one of our experts!

G4s & Cubes

DV iMacs™

iBooks™

PowerBooks®

Blue & White G3's

Beige G3's

Software

TradeUp

We'll take your Mac OS computer in trade toward the purchase of new product. Call one of our expert Mac consultants for full details!

with
PowerMax!

G4x2
G4
G3
G4
G5
G6

601 603 604

603

Apple Authorized Reseller

Apple Specialist

DUOPOWER
NOVUS

VISA

MERRITTS

LOGIC
SYSTEMS

604

604

604

604

604

605

605

605

605

605

606

606

606

606

606

607

607

607

607

607

608

608

608

608

608

609

609

609

609

609

610

610

610

610

610

611

611

611

611

611

612

612

612

612

612

613

613

613

613

613

614

614

614

614

614

615

615

615

615

615

616

616

616

616

616

617

617

617

617

617

618

618

618

618

618

619

619

619

619

619

620

620

620

620

620

621

621

621

621

621

622

622

622

622

622

623

623

623

623

623

624

624

624

624

624

625

625

625

625

625

626

626

626

626

626

627

627

627

627

627

628

628

628

628

628

629

629

629

629

629

630

630

630

630

630

631

631

631

631

631

632

632

632

632

632

633

633

633

633

633

634

634

634

634

634

635

635

635

635

635

636

636

636

636

636

637

637

637

637

637

638

638

638

638

638

639

639

639

639

639

640

640

640

640

640

641

641

641

641

641

642

642

642

642

642

643

643

643

643

643</



SUPERIOR Products for Your POWERBOOK

www.mcetech.com

NEW! FireBay FireWire Docking Unit

- FireWire Docking Unit for PowerBook Expansion Bay Drives
- Turn your expansion bay drive into a bus-powered FireWire drive
- Stackable • Hot Swappable
- Use with FireWire equipped PowerBook, iBook, Power Mac, Power Mac Cube or iMac • Compatible with expansion bay devices for PowerBook G3 99 & 2000 (Lombard & Pismo)



\$169

Xcarét Pro Expansion Bay DVD/CDRW Drives

- Bootable! • Hot Swappable • Fast Backup or File Transfer
- Toast™ Recording Software • Protective MCE Carrying Case
- Available for PowerBook G3 98 (Wall Street) or PowerBook G3 99 & 2000 (Lombard & Pismo)
- Perfect for use with MCE FireBay!

iTunes and Disc Burner Compatible!

Xcarét Pro CDRW drive \$399

\$449



Xcarét Pro Expansion Bay Hard Drives

- Ultra Fast! • Hot Swappable • Bootable • Compact
- Protective MCE Carrying Case • Perfect for use with MCE FireBay!
- Available for PowerBook G3 98 or PowerBook G3 99 & 2000

48GB 30GB 20GB 10GB
240 min. 150 min.^t 100 min.^t 50 min.^t
\$799 \$549 \$449 \$349

Do It Yourself Kit
Turn your old internal PowerBook drive into an expansion bay drive!

\$149



GREAT for
Video
Editing!

^tApproximate FireWire DV Video Capture time in minutes.

Internal Hard Drive Upgrades for PowerBooks

• The BEST Internal Hard Drive Upgrade Kits for your PowerBook!

• Package includes hard drives from the same manufacturers that shipped in the PowerBook from the factory, bundled with everything you need for a successful installation*

10GB 20GB 30GB 48GB
PB G3 Series, G3, 3400, 2400 & 1400* \$199 \$299 \$399 \$649



NEW! Transport Portable FireWire Hard Drives

- Sleek Mini FireWire Hard Drives for use with any FireWire-equipped Mac
- Use the Transport Drive Do-It-Yourself FireWire or PC Card Kit to Convert Your old Internal Drive into a Portable Drive!



48GB 30GB 20GB 10GB
\$799 \$549 \$399 \$299

Do It Yourself FireWire Kit
Do It Yourself PC Card Kit



USB FlexLight

- Conveniently lights up your keyboard and surrounding paperwork

\$24.99



Distributed by:
INGRAM MICRO

For more info:
www.mcetech.com
800.500.0622
949.458.0880

* See website for details

www.powerbook1.com

secure online ordering

CardBus Upgrade Service

opens up the possibilities for **USB, FireWire, 10/100 Ethernet, expanded Video**

for
PB 2400 &
3400/G3

See website for details!

WORLD'S SMALLEST POWERBOOK AC ADAPTERS!
FOR PB G3 MODELS, iBOOK, 3400, 2400, 1400 & 2300
AND NOW ONE FOR THE PB G4 TITANIUM!



Micro-AC Adapter
only
\$85



Auto/Air Adapter
Charge your PowerBook in the car or airplane
\$80

BUNDLE DEAL!
Micro-AC Adapter & Auto/Air Adapter \$150

MADSONLINE

G3 to G4 Generation Gap
AC Adapter Converter
\$20

Carrying Cases

Slimline Case...\$99
Productivity Case...\$139
G4 Saver Neoprene Carry Case for PB G4 \$59

Titanium PowerBook G4

\$2599

• 400MHz G4
• 128MB SDRAM memory
• 10GB Ultra ATA drive
• DVD-ROM • 10/100 Ethernet
• 56K internal modem
• 2 USB ports • FireWire port

iBook

\$1799

• 500MHz G3
• 128MB SDRAM memory
• 20GB Ultra ATA drive
• 10/100 Ethernet • DVD/CD-RW
• 56K internal modem
• 2 USB ports • FireWire port



Authorized Reseller

Call for Custom Configurations & Bundle Deals!

* While supplies last. \$30 installation fee added to price of computer.

m acally

\$35 iOpti Jr. Compact USB Optical Mouse

\$79 CardBus-to-USB Adapter

\$69 iMouse Jr. Mini USB Mouse

\$39 iVoice USB Microphone

\$29 iHub Jr. 3 Port USB Hub

PRO AUDIO EQUIPMENT FOR POWERBOOKS

\$599 Samberg VXpocket Professional ANALOG AND DIGITAL audio interface for your PowerBook! \$99

Lightweight USB-2-Midi Interface

TARGUS

Top Loading Notepac
\$49

Backpack \$59

Retractable Phone Cord
\$15

4-Port Mini USB Hub

\$49 Defcon-1 Security Alarm

World Travel Connection Kit

VST TECHNOLOGIES INCORPORATED
Expansion Bay Zip Drives
100MB starting \$199
250MB \$279

Charger, Battery & AC Adapter Bundle
\$285

RATOC Systems
CBFW2 CardBus-to-FireWire Adapter
CB31PB CardBus-to-Ultra SCSI Adapter
FireREX1U FireWire-to-UltraSCSI Converter
Composite or S-Video Input
CapSure USB Built-In Microphone
CapSure/Kritter SV BUNDLE DEAL! \$229
\$99 \$119 \$129 \$139

Kitter USB Camera

\$99

Kitter USB Camera

\$129

Kitter SV Camera

\$139

Kitter USB Camera

\$129

Systems & Peripherals
Memory & Upgrades

DIRECT showcase

MAC-PRO.com
Systems & Software
Buy • Sell • Upgrade • Repair • New • Used

We have It All
In Stock!
• iMac, G3, G4
• PowerBooks

Everything Mac!

Any Ad is a Mac Pro Ad
800-525-3888
sales@mac-pro.com Fax 408-369-1205

192 on card or www.macworld.com/getinfo

SELLING DIRECT? SELL MORE

WITH AN AD IN THE
Macworld
SHOWCASE

CALL NOW **1-800-597-1594**

SELLING DIRECT? SELL MORE

WITH AN AD IN THE
Macworld
SHOWCASE

CALL NOW **1-800-597-1594**

GO TO OUR WEB SITE @ WWW.

OR CALL 800.304.4639



**MAC
OF ALL
TRADES®.COM**

500 Bishop Street, Suite E3

Atlanta, GA 30318

404.355.5144 FAX 404.355.5461

email: sales@macofalltrades.com



BUYER'S AND SELLER'S RESOURCE FOR USED MACS SINCE 1994

MEMORY

LOWEST WEB PRICES!

Upgrade Today. It's Easy!

MEMORY	mb	16	32	64	128	256	512
G3/G4	-	\$12	\$19	\$31	\$59	\$135	
PowerBook G4	-	-	-	\$31	\$65	\$119	
PowerBook G3	-	\$20	\$26	\$36	\$65	\$129	
iMac™ 350-600	-	\$12	\$19	\$31	\$59	\$135	
iMac™ 233-333	-	\$20	\$26	\$36	\$65	-	
iBook™	-	\$20	\$26	\$36	\$65	-	
168 pin DIMMs	\$19	\$27	\$40	\$89	-	-	
72 pin SIMMs	\$15	\$24	\$49	-	-	-	

SPECIALS!!

Mac OS 8.1 CD only	\$39
Mac OS 8.6 w/Free 8.5 CD	69
Mac OS 9	79
Global Village 56k serial modem	69
NEW MAC CPUs!*	
PowerBook® G4-500 128/10gb web	
G4/500 OS X SERVER	1,499
G4 500 256/18gb/UW	1,499
G4 466 w/ FREE 256mb web	
PowerBook® G4-400 128/10gb \$2,599	
Special pricing on our website. GO There!!	

*New Macs available for Walk-In sales only.

WE BUY USED MACHINES - 604/G3/G4

Authorized Reseller

Apple Specialist

Authorized Service Provider

MacSolutions, Inc. Fax: (310) 966-4433

11933 Wilshire Blvd, West Los Angeles, CA 90025

University & School P.O.'s Welcome. Ad code 525

Call 800-873-3RAM or Order Online at
www.macsolutions.com

MEMORY

DATA MEMORY SYSTEMS - CALL 800-662-7466

Lifetime Memory Guarantee - 30 Day Money Back

AC Adapters
Batteries
Cables
Camera Memory
DIMMs
MacCPU Upgrades
Iomega Stuff
Modems
Monitors
Networking
PowerBook Memory
Printer Memory
SDRAM
SIMMs
Storage Drives
Surge
Suppressors



DMS has all you need
to network your business

Memory

- ✓ PC66 SDRAM
- ✓ PC100 CL2/CL3
- ✓ PC133 SDRAM
- ✓ ECC & EDO

Networking

- Client/Server Systems
- Ethernet Cards & Conns.
- Hubs
- CAT5 Cabling

Since 1986, DMS has provided
customers with the best mem-
ory prices, guarantee and
service anywhere!



DATA MEMORY
SYSTEMS
24 Keeyadin Dr.
Salem, NH 03079
Fax: 603-898-6585

Nothing has changed...

Secure Online Shopping

www.datamem.com

Circle 213 on card or go to www.macworld.com/getinfo

WHY IS THE COMPETITION SHAKING?

BECAUSE

1•800•4•MEMORY
IS HERE

WE CAN BEAT
ANY QUOTED PRICE ON ANY
MEMORY FOR ANY COMPUTER
(NOTEBOOK, DESKTOP,
PRINTERS) ANYWHERE . . .
PERIOD!

- LIFETIME WARRANTY
- FREE TECH SUPPORT
- NO CREDIT CARD SURCHARGE
- MOST ORDERS SHIPPED SAME DAY

CALL AROUND THEN CALL US

CHECK OUR WEB SITE FOR SPECIALS
WWW.18004MEMORY.COM

SELLING DIRECT? SELL MORE

WITH AN AD IN THE
Macworld
SHOWCASE

CALL NOW 1•800•597•1594

one memory.com

LIFETIME WARRANTY
BEST QUALITY
SECURE
FAST • EASY

PC100
128mb '30
256mb '58
PowerBook G4
128mb '30
256mb '64

sales@onememory.com
www.onememory.com

Classifieds

POWERBOOK GUY - The premier source for powerbooks, parts, & accessories!
www.powerbookguy.com (415) 386-0200

Macintosh web hosting & QuickTime streaming - Host your site on secure Mac servers - Publish your FileMaker database on the web - Access like an iDisk! - Stream QT Movies - Plans start @ \$100/year w/50MB of space.
www.macserve.net

ROLL CALL CHURCH MANAGEMENT SOFTWARE, ONLINE BIBLE. BY THE BOOK
www.bythebook.com or dial (800) 554-9116

For more information, contact Niki Stranz at 415-243-3664 or Carol Johnstone at 415-243-3691

continued from page 140

day I'd jump up and down on my clock radio once too often, necessitating a replacement, and would I be willing to spend an extra \$15 for . . . ?

This is the sort of stuff Bluetooth's backers are betting on. Your car reports from the driveway that the oil and gas are low, your TiVo sends an alert to your Palm that the Bob Elliott episode of *Newhart* will air on Thursday, all the doors to your house automatically lock if you try to exit wearing a pair of those Old Navy pants—*baaad* craziness.

But while it's possible to purchase a Bluetooth-enabled phone if you look hard, finding Bluetooth accessories for it is possible only in the same sense that it was possible for that California zillionaire to buy a vacation on the International Space Station. Sure, you've read about it, so you know it's possible, but www.sendarichguytospace.com comes back 404, and no one will tell you where to send the check. Microsoft has even dropped Bluetooth support from its new "No, really, this time it's *really* as simple as a Mac, honest" rewrite of Windows.

Pod People

Where's Apple in all this? Playing it safe. It's not going to do anything to prevent Bluetooth from working with Macs, but it's also not particularly interested in encouraging development. This could turn into the same sort of misstep that Apple made when it didn't bother to put CD-RW drives in new Macs last year.

The thing is, Apple shouldn't see Bluetooth as competition for AirPort, which (along with all of the other networking hardware that embraces the 802.11b Wi-Fi standard) is gaining broad acceptance. AirPort and Bluetooth complement each other really well. Bluetooth is a swinging-seventies technology: casual, random, cheap, and easy—a quick linkup that gets the job done without a big preamble. AirPort, in contrast, is sturdy and reliable, a technology to use when you're building for the long term.

And Bluetooth has the capacity to become another Pod People technology, the sort of feature that instantly turns a company's customers into members of the sales force. Anyone who owned a Newton is familiar with the syndrome. If you used a MessagePad 2100 on an airplane, suddenly you were the pope of row 21. It drew people in. People wanted demos. They couldn't believe what you could do with it, and then all of a sudden *that* thing, that logo was what everyone simply had to have.

Someday, even those people who aren't dating major geeks will have alarm clocks that can operate in cahoots with their coffeemakers. It'll be a damned shame if visitors to their houses ask to see the little plastic box that makes all those cool things happen—and don't see an Apple logo on it. ■

ANDY IHNATKO (www.andyi.com) is fairly certain that his toaster is plotting against him.

ACTUALLY, IT WAS A LOT easier than I thought it would be. Open up my sweetheart's coffeemaker, install a mechanical relay to switch it on and off, design and install a light sensor that detects when the Coffee Ready light turns on. Alter her clock radio's snooze button with some more custom circuits. Wire them both into X10 modules attached to my file server. Write a bunch of AppleScripts to oversee and control the whole mess. *Bango*. That's all there was to it.

OK, my sweetie didn't understand it, either. But she didn't care. Her alarm clock continued to work as usual. The big difference was that now, when she slapped the snooze bar and returned to the Starship of Chocolate Elves, my Mac started her coffeemaker, and when and *only* when the coffee was actually ready, my file server terminated her alarm clock's snooze mode.

It worked flawlessly. She went absolutely nuts for it and didn't dump me until after I'd added scripts that independently analyzed, charted, and Web-published her pots-per-day consumption and snooze-to-brew performance timeline.

You should distill three messages from this tale. First, a geek's expressions of devotion tend to skip right past the trite candy-and-flowers stuff and go straight to things that might cause all of your combined possessions to burn to ash. Second, I'm now available, gals. Third and most importantly, wonderful things can happen when simple gizmos have the ability to work together.

Which brings us (after I take a moment to reemphasize that second point) to Bluetooth.

On the Fly

Bluetooth is a standard for wireless connectivity, or in plainer language, it allows devices to use radio rather than wires to communicate with one another. It's sort of like Apple's AirPort, but on a cozier scale. Bluetooth devices can find each other

ANDY IHNATKO

The Best Part of Waking Up

*Your Mac and Your Appliances Can Talk to One Another—
Be Very Afraid*



and link up automatically. You power it up, and *bango*—it's talking to other Bluetooth devices.

Bluetooth can manage only a tenth of AirPort's speed. And while AirPort can communicate across a football field—including both end zones—Bluetooth reaches only about as far as you can throw a paper airplane. But when it comes to simplicity and convenience, Bluetooth's the winner. Right from your pocket, your Bluetooth-enabled handheld device can sync to your computer the moment you step into the office. No connecting cables, no configuration.

People don't really "get" Bluetooth yet, and it's no wonder: at present, it's promoted primarily as a cable eradicator. Granted, that's a strong draw if your boss is regularly *beating* you with the things, but now that almost anyone can post a resume on Monster.com and supposedly find themselves a better job, surely that market is shrinking fast.

Bluetooth's proponents should really be touting it as a simple, low-power, and (hopefully) *dirt-cheap* way to get devices talking wirelessly. A Bluetooth-enabled cell phone projects a bubble of network access, 20 meters in diameter, all around itself. If that phone is in your pocket, the PDA in your hand can get e-mail; if that phone is in a backpack in the trunk of your car, the hands-free kit clipped to your ear can place and answer calls.

About 2,500 companies, from IBM and Microsoft on down, are participating in the development of Bluetooth—but the companies that are *not* in the geekware business are asking the most interesting questions. What if—as promised—Bluetooth really *does* become simple and inexpensive enough to go into familiar appliances? I wouldn't spend \$280 on a "Wake Me When the Coffee's Ready" percolator. But would I spend an extra \$15 for a coffeemaker with Bluetooth? Absolutely. I'd get no use out of it for months, certainly, but one continues on page 139

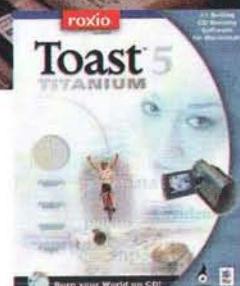


Need more space? Try a digital solution. Back up your data, burn all your video, MP3s and multimedia presentation files onto CD. Anyone can do it with Toast® 5, by Roxio. The world's best selling CD burning software for the Mac. Check out roxio.com/toast5. Use a PC? Look for Easy CD Creator® 5.

burn everything



roxio™
THE DIGITAL MEDIA COMPANY



Axel
Axel Development
& Support

Axel Development & Support

Mac OS/UNIX Ontwikkeling
& Ondersteuning

Ceintuurbaan 167-169

1073 EJ AMSTERDAM

The Netherlands

email info@axel.nu
web www.axel.nu



Now with no wire,
no clutter, no hassle. Cool.

Introducing the perfect complement to Mac® OS X—the Turbo Mouse® Pro Wireless from Kensington. Now there's nothing to tie you to your desk. No clutter to knock over your pencil cup. And no more hassle, because you get the latest thinking in Turbo Mouse Pro Wireless. Like six DirectLaunch™ buttons, four programmable buttons and scroll wheel, along with the smoothest tracking in the Mac market. Imagine designing, building and surfing from your hand, lap or pizza box. Finally, there's a real reason to go wireless. To clean-up your desk, visit your nearest Kensington reseller now or go to www.turbomouse.com.

KENSINGTON